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MASSIVE 72 PAGES

NEW COMPUTER EXPRESS

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C64
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ARCHIE • BBC QL • CPC • MSX SPECIALIST COLUMNS

ACORN'S SECRET

Details of the next Archimedes revealed to Express

page 2

XMAS 1989 GAMES

THE RACE FOR XMAS

Express checks out No 1 game contenders page 7

VIRUS REPORT

Latest news from virus conference page 16

50 TOP PCs

32 PAGES PACKED WITH BRITAIN'S BEST COMPUTER BARGAINS

SHOPPING EXPRESS

CONTENTS

FEATURES

VIRUS ATTACK 8
Report from a virus-busting conference

IN YOUR POCKET 10
The tiny PCs are taking the market by storm. Which should you buy?

CHRISTMAS IS COMING 16
The games companies are getting fat. Who will the race to the Xmas top spot?

MAKING GAMES 18
Shortcuts to writing your own blockbuster

BRAIN POWER 20
How brain-like computers could revolutionise the future

I ROBOT 53
Controlling a Lego robot from your micro

REGULARS

COMMENT 4

LETTERS 14

VOUCHERS 21
Save £10!

BUYERS' GUIDE 23
Which PC compatible?

READERS' CLASSIFIED ADS 34

EXPRESS SALES 39
The best bargains outside the Lesser Magellanic Cloud

JOBS 43

TECH TIPS 54

GAMEPLAY 66
Report on the comings and goings in the games world – releases, reviews, ranting...

BACK PAGE 70

YOUR MACHINE

PC compatibles 58
Amstrad PCW 59
Acorn Archimedes 59
Atari ST 60
Commodore Amiga 60
Sinclair Spectrum 62
Amstrad CPC 62
BBC Micro 63
Commodore C64 63
MSX 64
Sinclair QL 64

NEW COMPUTER EXPRESS EXCLUSIVE

ACORN PLANS SUPER A3000

Acorn will launch a high specification version of its successful A3000 machine next spring at a price of under £1,500, *Express* can reveal.

Called the A5000, it will boast speeds which even the forthcoming Amiga 3000 and Atari TT will not be able to match. Indeed, the A5000 will be able to outstrip even the speediest 386 PC making it arguably the fastest home computer.

The machine will look much the same as the BBC A3000 which was launched last May. However, its technical specification will wow those computer owners looking to move into the new generation of computers.

It will run Acorn's new ARM 3 processor which can handle speeds up to 10 times faster than the Archimedes' current microprocessor, running at upwards of 15 million instructions per second (MIPS). An Amiga runs at less than 1MIPS. The ARM 3 is currently being sold as an add on for the Archimedes 4000 range at a price of £600. However, the increasingly popular low-cost A3000 cannot be fitted with ARM 3.

That £1,500 price point is still a matter of debate within Acorn. The firm's marketing chiefs and hardware designers have yet to decide whether or not to make the entry level a 1Mb or 2Mb computer. Clearly, if the firm opts for extra memory the price will come up. However, the pressure is on to compete on price.

Ambitious Acorn is even hoping to take on the Apple Macintosh for DTP supremacy. The firm's outline font manager will be included which increases the quality of printing output.

The Archimedes is also making a name for itself in graphics and video applications. High resolution screen monitors will also be available (although they won't be within the £1,500 price point).

Acorn is point blank refusing to comment on the matter. This is no surprise. When details of the A3000 were first leaked to *Express* (Issue 20) its existence was completely denied until the official launch.

Such is the level of secrecy within Acorn that most developers have not been told about the machine. Most were aware of the A3000 but were obliged to sign non-disclosure agreements. But these legal documents don't appear to be enormously effective – Acorn has attempted to keep the news within its Cambridge headquarters. ■

• *A3000: big brother on the way*

Taking games seriously

The prospect of a games machine based on Archimedes technology is looming large. The Acorn management is expected to make a decision mid way through next year.

It is waiting to see how the A3000 fares among games players and games developers. Acorn has been attempting to persuade software houses to write games since the A3000 was launched and has scored something of a success. But it is yet to be convinced that an Acorn games machine can be a success.

Olivetti – owner of Acorn – is keen for the firm to make use of its technology and gain a footing in entertainment.

However, the difficulty is offering a stripped down version of the A3000 for at least £200 lower than its current price (£699). This could be achieved by taking out a few ports at the back but it's always going to be tight.

Many suspect a deal will be struck with another manufacturer which will market a machine based on the Archie.

Such a compromise will give Acorn some profit from the games sector without all the hard work. There is a strong argument to suggest that the Acorn name is best associated with serious pursuits.

But a strong line up of Archimedes games will convince those in favour of a RISC-based games machine to push it through. ■

Back to BASICs

A new version of BBC BASIC is being developed – but it won't be ready for months.

Version VI will be geared toward graphics and games. It will have a built in animation command as well as upgraded music capabilities. However, it won't be included in the A5000. It is expected that BBC BASIC VI – which will be used in the Archimedes range – will be able to double the speed of some games

The last upgrade for BBC BASIC was to version V when the Archimedes was launched two years ago. BBC BASIC is the standard language in schools, and non-Acorn machines such as the RM Nimbus and the Amiga also have versions. ■

Piracy busters turn to big business

French police have raided the premises of two corporations and have seized allegedly pirated copies of leading business packages.

Telediffusion de France and Banque Paribas are alleged to have used illegal copies of Ashton-Tate, MicroSoft and Lotus software. The raid was partly set off by the Business Software Association which has been threatening a crackdown on large companies for some time.

Lawsuits have been taken out but, in an attempt to protect its reputation, TDF is reported to have attempted to hush up the announcements of the legal action. The courts have rejected this plea.

Ashton-Tate has been leading the worldwide fight against piracy and is currently concentrating on taking advantage of recent copyright laws in Western countries as well as pushing through legislation in other countries. France has one of the best anti piracy laws in the world giving software houses more clout.

In the UK FAST has already said that it will be turning its attention to large corporations which are faiing to buy or licence their software.

Meanwhile, expect to see a run of anti-piracy ads in the press. The hard hitting campaign makes it clear that pirates will be prosecuted if caught. It's backed by the European Leisure Software Publishers Association (ELSPA), FAST and various magazine publishers.

Schneider Euro PCII: tech specs leaked

Exclusive details of Schneider's new generation of low cost PCs have been leaked to *Express*, including the upgrade to the popular Euro PC.

The German manufacturer plans to launch four new models before the end of the year – the Euro PCII, Euro XT, Euro VGA AT as well as the widely expected 386SX.

Schneider's Euro PCII is being dubbed "a logical development" from its predecessor and is identical in appearance to that £399 machine. The memory has been upgraded from 512Kb to 768Kb on the motherboard. There is also new provisions for a games card and an additional socket for an 8087 maths co-processor.

Next up the range is the XT which will "fill the gap between the Euro PCII and the 286 range" It's a conventional XT machine with 768Kb of RAM on board and a barrage of expansion ports.

The VGA AT will be 286 based and will come with a vertical CPU box. Again, this machine will be identical to its original but the addition of VGA graphics capabilities and larger hard disk make it a better option.

Finally, the top of the range 386SX is promised to be a low cost alternative for the buyer looking for power. The 1Mb machine has an expansion facility to 5Mb with VGA graphics as standard.

Schneider was last week tipping off the trade about these specifications but is refusing to be drawn on price. "I suppose someone from the trade called you as soon as they heard the news, that's just typical," offered a disgruntled spokesman. "I've no comment to make."

However, wise money is being put on some prices that will worry Amstrad. Two years ago Schneider was Amstrad's distributor in Germany but there's little love lost between the two companies now.

The ultimate in gung ho gaming:

NATO DECLARES WAR ON COMPUTERS

Three thousand senior military commanders throughout Europe will today (Thursday) begin the biggest computer simulation yet devised.

They are all taking part in a full scale European war played out on seven huge VAX 8000 mainframe computers. The NATO tacticians are pitted against a small group of officers who claim to understand Soviet military thinking. They will be the "enemy" from the safety of a computer and will kick off the conflict with some devious aggressive moves.

In all some 900,000 troops will be at the disposal of the generals who will be fighting land, sea and air battles all over the continent. But not one human is to be deployed. The VAX machines take care of everything. Every single man and weapon have been programmed into the computers.

This is the first time such a war has been fought out on computer. NATO says it's not being done to prove how good they all are. "We don't know who will win," one commander told *The Times*. Computers are being used to test tactics because shifting armies all over Europe is getting a bit expensive.

The simulation has been planned by General John Galvin who has been working on it for two years. He will be based in the operations centre of SHAPE (Supreme Headquarters Allied Powers Europe) in Belgium throughout the eight day test. He will be linked to a line up of Generals throughout Europe who will talk to each other via television. Their orders will be fed into computers by corps commanders in Germany and Texas (reinforcement). The computer will decide who has won.

However, real war simulations aren't being displaced by the computer since real battles don't get fought out on silicon chips.

• Computer war: what is it good for?

Computer smellchecker

Microchips are being used to develop the first artificial nose capable of sniffing out wiffy grub in your fridge.

The computerised honker is being put together by scientists at Manchester University. They say the idea is to develop a sensor which will let you know when the sausages have passed their eat by date or the cheese has finally given up the ghost.

A human nose can recognise 10,000 different odours and these are all passed on to the brain. The Manchester project is using similar patterns on its project which should be ready next year.

Picture the screen

A giant computer screen measuring 10 feet by seven feet has been developed in the US.

The screen can be used as a wall size map and is accessed in exactly the same way as your monitor and can be plugged directly into most PCs.

It is hoped that railway companies will consider taking it on to experiment with analysing traffic flow in congested inner city lines but it can also be used by housing planners and emergency services managers.

An end to seriousness

American software giant Activision has decided to return to its roots as an exclusively leisure orientated publisher.

This follows a last quarter loss of $1.9 million. The firm is putting much of the poor performance down to its serious and productivity software exploits. Two labels which concentrated on those areas, TenPoint and Presentation Tools, have been scrapped. Despite big plans for the labels they contributed only eight per cent of the company's turnover.

Activision says it will support products already launched on those labels but won't be developing any upgrades.

WIN £10,000

We have over £10,000 of software and hardware to give away in our stunning Christmas competition. Watch out for your chance to win one of hundreds of prizes, coming soon in *Express*.

COMMENT

ARC: ROUND IN CIRCLES?

If you had what was generally regarded as the best, fastest and most desirable home computer, and if you had seen a meagre software base grow quickly enough to provide a wide range of programs to tempt the buyer, but if everyone said the machine was currently just a bit too expensive to compete with the Atari STs and Commodore Amigas of the world, what would you do?

Acorn's answer would appear to be: bring out a new model, which is faster, more powerful... and much more expensive. The cheapest entry-level Archimedes is £699 + VAT – over £800. The new A5000 would be £1500.

The company would no doubt defend itself by saying it is not trying to produce cheapo games machines, but serious computer work tools. Surely though this distinction is becoming more and more blurred – possibly the only home micro that could be described as mostly serious is the Amstrad PCW, which has sold precisely because it is cheap.

The only way for the Archimedes to be seen as a genuine alternative to the PC/ST/Amiga 16-bit triptych is via a mass market. This will only happen if there is a cheap entry-level machine – such as the one reportedly under consideration, but not to be started on until deep into next year – which can bring in the sub-£500 buyers.

This is not easy, and would necessitate a lot of corner cutting – lack of expandability perhaps. But it would be worth the effort: increased sales, a larger user base, more software and the establishment of the Archimedes as the home computer to own.

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Thirty games on CD for only £20

CODERS' CD REVOLUTION

Code Masters has launched a remarkable games compilation on compact disk which the firm boasts will "easily" take the coveted Christmas number one.

The 30-game compilation includes most of the Coders' budget hits of the past three years. They can be loaded from a standard CD player to your Speccy, CPC or C64 in seconds.

The whole thing, which includes leads, will cost only £20 – that's 66 pence per game. Code Masters says its new development will make irritating load errors " a thing of the past". It takes about 20 seconds to load a game from CD – compare that to about five minutes from tape deck.

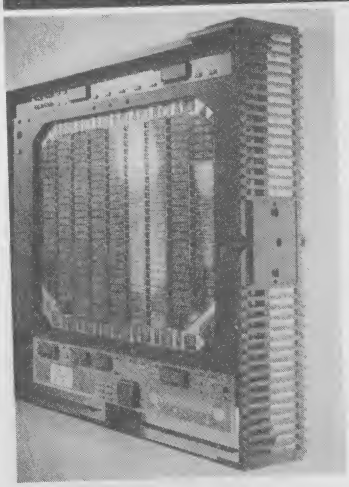
The firm is stressing how simple it is to link a CD player to a micro. The lead is connected to the headphone socket. However, full instructions will be included.

A spokesman boasted "We're absolutely convinced that this will go to number one. How can it fail?" The thirty games include *BMX Simulator, Fruit Machine, Street Football, 4 Soccer Sim, Treasure Island Dizzy* and *ATV Sim.*

However, an ST and Amiga version could a long time coming. "There are some technical difficulties which we're attempting to iron out," said the spokesman.

Rainbow Arts brought out a similar product earlier in the year for £30. While remarkable, that only boasted six games on the disk.■

SINCLAIR'S LATEST PROJECT



• On the left is the latest device to come from Sir Clive Sinclair – the Anamartic Wafer Stack.

Sir Clive holds a 20 per cent share in Cambridge based Anamartic which has been working on stack for more than two years. And it's well worth the wait.

This is a high performance computer storage device based on wafer scale integration. It is capable of accessing data at one hundred times the speed of a normal disk drive. While a standard magnetic drive can access data in about 20 milliseconds Anamartic's creation manages it in 0.2ms.

The drive contains eight 40 megabyte storage modules each of which consist of two wafers which, between them, can handle 32,000 pages of information.

Sinclair has told Express *that the chip will "completely transform computing". Anamartic's creation costs nearly £10,000.*■

SNIPPETS ● SNIPPETS ● SNIPPETS ● SNIPPETS

Realthings is a new animation demo which will "bring your Amiga to life". It portrays moving images of insects, birds and animals instead of the usual bouncing balls. The whole thing was put together by Animation Studio Software using *Deluxe Paint III*. More from distributor DigiPro on 0703 703030...

Is your mouse all sticky and horrid? Those lovable pragmatists at Accodata have a solution. The mouse cleaning kit costs £15.96 (a snip!). Ask your dealer...

Commodore has launched a new PC into its range. The PC10/40 III is a 40Mb hard disk version of its PC10. Entry level version costs £655...

Volkswriter has some new versions of its *Volkswriter* word processing package for the PC. It's all very complicated but needless to say there are loads of new features as well as bargains for upgraders. Call 0494 772442...

Free Spirit Software has a new "adult graphic adventure". It's the fourth to involve hero Brad Stallion. Pervies are promised "twisted humour" and "a sinful" time of it. No UK distributor as yet so you'll just have to call 0101 215 683 5609.

Mach goes down

Leading Archimedes add ons firm Mach Technology has ceased trading with members of the firm currently on police bail.

The firm had been selling a desirable 286 PC add on board for the Archimedes at £199. A series of double page advertising spreads in the Beeb press had prompted much interest in the firm. It also sold a variety of Archie hard disks.

However, Mach appears to have overstretched itself with monies owed for the ads. It is not known how much money is owed to prospective buyers of its products.

A spokesman for Stockton-on-Tees police said: "They are on police bail. I should say a lot of people are owed money." He wouldn't comment further on the matter. Apparently, the firm's bosses are respected developers in the Archie field having worked for a variety of influential companies in the past.■

NEC takes note

Yet more notepad PCs have been launched – this time by computer giants NEC and IBM.

NEC's NotePC 98 has a 3.5-inch drive as well as a slot for an internal integrated circuit card. It's expected to go on sale for the equivalent of about £1,200 which, for NEC, is extremely cheap. That firm is responding from competitive pricing from the likes of Zenith and Toshiba. It should arrive in the UK early next year.

IBM's A4 size machine has an 8MHz 80C186 processor with a built in modem. It weighs around 4.5 pounds. IBM UK doesn't know when or if it'll show up here and prices have yet to be fixed.■

Japan's ½p supercomputer

Japanese electronics giant Fujitsu has offered to install a multi million pound supercomputer in Hiroshima for just a half-penny.

The firm was so desperate to get the contract to computerise the city's water system that it quoted a price of one yen. The network costs 11 million yen (£55,000). However, furious competitors in the US and Japan have branded the move unfair.

As a result Fujitsu has reluctantly withdrawn its bid. A spokesman said: "It wasn't illegal, but it was against common sense."

Japanese supercomputer manufacturers have caught up with their American competitors in the technology stakes but lack large scale installment and system management experience. Companies like Fujitsu would be prepared to make a heavy loss on today's big contracts in order to gain crucial experience.

However, a £55,000 supercomputer for ½p is absurd. On that basis the Amiga would cost only 0.0004p...■

• Player Manager: *kicking off soon*

Playing the field

The game which surprised Britain's computer soccer freaks is back – but with even more features.

Kick Off's long awaited sequel *Player Manager* is due for release any time now and promises to feature all the furious gameplay of its predecessor along with some shrewd tactical additions.

Instead of just controlling the team the player manager has to make some pre-match decisions. It's been written by *Kick Off*'s author Dino Dini and is being tipped as a sure fire winner.

It'll cost £9.95 for the ST and Amiga. For more information call publisher Anco on 0322 92513.■

Earthquake virus hits

Tokyo's ultra sensitive Earthquake Research Unit has been struck by a computer virus – the first to be reported in Japan.

Scientists lost data to two different viruses which hit their computers in the space of a month. It made its way into the centre through an infected floppy disk. Luckily, the virus didn't affect the mainframe which does most of the earthquake detection work.

The scientists are situated in the University of Tokyo and are studying seismology of the seabed.■

EXCLUSIVE: Cut down games console for British market

BUDGET PC ENGINE PLANNED FOR UK

A new stripped down PC Engine is to be launched in Japan early next year with UK arrival pencilled in for autumn 1990.

The low cost machine will do away with the Engine's data bus which is fitted to the back of the console. That was originally included to take care of expected peripherals such as the CD-ROM. However, such peripherals have not performed as well as expected in Japan with many users not bothering with expansions. Worldwide CD-ROM sales of 650,000 have failed to enthuse the Japanese manufacturer NEC which doesn't consider that an especially impressive figure.

It feels that by cutting out the data bus the price can be sliced by between £20 and £30 and a whole new seam of buyers can be mined. It should arrive here by next autumn at just over £100.

• *The PC Engine (right, and running Space Harrier above). A cheaper UK version is planned*

SUPERIOR GRAPHICS

Importers here in the UK will be looking to snap up potential buyers who are looking at low cost options such as the Sega. At around £150 the PC Engine is more expensive than its rivals, but its graphics are superior.

Meanwhile, standard PC Engine owners are to be offered a four-inch monitor which can be plugged straight into the data bus. This will free players from the television screen and will dispense with old incompatibility problems with British sets. Retail prices haven't been fixed as yet, but the tiny monitor should allow the PC Engine to directly compete in the hand-held market.

• Hudson, which has a large stake in NEC's PC Engine, is rumoured to have secured the rights to a console produced by coin-op manufacturer Namco. Called the Namco 16 it incorporates 16-bit technology and could be launched against Nintendo's new Super Fanicom as the PC Engine 2. Namco had been touting the console around American and Japanese hardware manufacturers for some time before Hudson stepped in and scooped the machine. It is thought that the firm is currently reconfiguring some of the hardware.

A recent report in Japanese mag *PC Engine Fan* claimed that the PC Engine 2 will have a 32K RAM, a colour palette of 1,024 and double the capacity for sprite handling. One leading British PC Engine importer last week described that as "nonsense".■

SPECCY ON LINE

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travel, gossip and gore every day
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complex world of personal finance
Prestel What's New 6
23 Monster Prize games, quizzes
24 Icebreaker Make new friends, chat
25 Studies Realtime multi user game
26 Bazaar Monday Friday small ads
27 Starnet Strategy game (CUG)
8 Browse
5 CUG?
9 Mnet

If you own a Speccy and want to log on then maybe its worth getting in touch with Micronet. Britain's number one on-line service is offering owners of the trusty machine a quarter subscription and a free modem for just £23. An especially frank spokesman offered: "The Spectrum market is a dying one and we want to address it while there's something left."■

Monster PC chip flawed

Intel's 486 'monster' chip has been found to contain technical flaws just as major manufacturers are beginning to launch high specification 486 PCs.

It has emerged that some of the chips already shipped have problems with a variety of mathematical instructions. Calculations involving tangent, sine or cosine values are affected. Intel has moved swiftly and will this week start churning out mistake-free chips.

Compaq, which is soon to join Hewlett-Packard, Olivetti, Apricot and Tandon in the 486 race, came across the fault two weeks ago and informed Intel.

An Intel spokeswoman commented: "The problems affect sine, cosine and tangent instructions and other error checking logic, but only when presented in a certain order."

Flaws were also detected in Intel's 386 chip but they were quickly corrected. Those companies which have already launched 486s have informed their customers of the problem.

Just as this year has seen an enormous number of new 386 PCs it is thought that the 80486 will be the standard microprocessor in top end PC-compatibles over the next two years.■

• *Right: Mathematical hitch for PC power chip 486*

PCs take half computer market

MS-DOS PCs constitute nearly half of all computers owned, according to a recent survey.

The survey by Dataquest reckons 47.5 per cent of home computers with a retail value of more than $600 are IBM compatible, with the Amiga and ST sharing 42.4 per cent.

Dataquest has some pretty strange criteria for home personal computers. It only includes complete systems with at least one floppy drive. With this and the price barrier such machines as the Speccy, C64 and all the games consoles are excluded.

Dataquest says only two per cent of British households have what it calls home personal computers. Atari, Commodore and Amstrad share 70 per cent of the European market with Atari leading on 27.5 per cent, Commodore second with 23.4 per cent and troubled Amstrad down 13 per cent to 16.7 per cent.■

Computerised cops find technology too taxing

An attempt to bring 'on the beat' police work into the computer age has been greeted with fierce resistance from seasoned coppers – but the experiment has been called "a qualified success".

The Devon and Cornwall Constabulary has been issuing some of its men with notebook computers to replace their little pads for the past 18 months. However, while rookies found the machines useful older hands thought they were difficult to get to grips with.

The police say they won't be taking on these computers but are making some recommendations for the future.

"There was a real resistance from older officers. The computers are only the size of a paperback and they didn't like the tiny keys," offered a constabulary spokesman. "The greatest advantage is that younger officers used prompts to question people in the correct manner."

The force is to recommend that any full time scheme using handheld computers should also include modems so information can be transmitted back to the station's computer via a portable telephone. This method is already favoured in the US.

The police say it's only a matter of time before handheld computers become standard here. But they want to get it right. "The technology is moving very quickly at the moment. It's really a matter of funding. It's a qualified success in that we now have the information ready to future developments" said the spokesman.■

• *On the beat: Too soon for computers*

• *Bull's 286: Leading the charge*

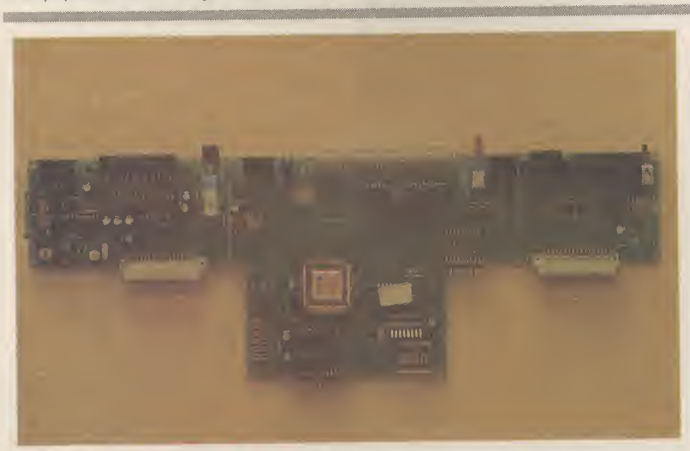
Bull charges in with 286 option

Broad-based manufacturer Bull has unveiled a new low cost 286 PC to complement its fast growing range of affordable computers.

The small footprint APW runs at eight to 10MHz and comes in two versions – single disk and 20Mb hard disk. They cost £1,255 and £1,455 respectively.

Both sport 640K of memory with a 3.5-inch floppy drive and a mono monitor.

Bull says it's looking to attract small business users and corporates who are sick of splashing out on power computers which aren't needed.■



• *Nearly ready to sell: that SAM circuitry in full*

At last: SAM Coupé arrives

After months of talking and promising it seems that the SAM Coupé is actually ready to roll.

The manufacturer, MGT, is taking it easy to begin with – about 2,000 of the machines will come off the production line every week. However, it is hoped that the capacity of 20,000 per week will be reached as soon as possible.

The computer is an eight-bit Z80-based micro which is designed to be Spectrum compatible. It has aroused a great deal of interest. The machine is easily expandable, and unusually for an eight-bit machine offers MIDI in and out ports. The sound and graphics are also said to be excellent.

The Coupé is being put together by a small army of different people. A&A Electronics in Glamorgan takes care of assembly; the PCBs are churned out by Kamicircuits in Wiltshire, the plastic cases by Plastic Injection Mouldings in Hereford and the metalwork is all undertaken by Alar Engineering in Cardiff.

Everything starts this week but MGT says those who have ordered first will receive machines first. The entry level price is £150. The number is 0792 791100.■

The un-scratch mix

Wouldn't you just love to listen to some of those old recordings of great jazz artists without the horrid clicks and cracks? Or maybe Queen Victoria's voice as it really sounded? Now there's a way thanks to a new computer program.

NoNoise from Sonic Solutions in California can take any recording and get rid of all unwanted noise. It does it by taking a digital copy of the original and recording the data onto a PC. That, including the clicks and cracks, is displayed on the screen.

The program will then sift through real sounds and intrusions. But instead of editing the clicks out it can replace them with sound waves based on the noises immediately before and after the click. This is undetected by the human ear since clicks only last for a fraction of a second.

London based Chop 'Em Out (01 960 8128) is currently using the system to repair old soundtracks. ■

CCCP PC

The Soviets are expected to buy more than 28 million PCs over the next 10 years.

According to market research outfit Dataquest it is the largest untapped PC market in the world. There are only 500,000 PCs there at present – nearly half of which don't come near Western standards.■

Setting Gold's standard

US Gold is set to hit the accelerator pedal for this year's race to the Christmas number one – its front runner is *Turbo OutRun*.

The Yuletide season's competition looks to be stiff particularly with driving games. Activision's *Power Drift*, Domark's *Hard Drivin'* and Ocean's *Chase HQ* are all no1-spot contenders

Turbo OutRun's predecessor *OutRun* reached number one in 1987 despite a poor reception from reviewers. C64 *Turbo OutRun* will cost £9.99 on cassette and £14.99 on disk. The game is due to be released on all formats at the end of November.■

• *C64 OutRun: The race is on*

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Rocket into the striking realism and spectacular visuals of **SPACE ROGUE**, the phenomenal 3D space flight simulation. You'll discover authentic flight dynamics, precision navigational aids and sophisticated weapons technology as you maneuver through turbulent ion storms and confront alien foes. You'll visit space stations and mining outposts — swapping tales with pirates, drinks with friends and goods with merchants. It's the seamless integration of space flight and role playing that makes **SPACE ROGUE** the first ORIGIN Cinematic Experience™.

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MINDSCAPE

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SICK JOKES

Viruses, imaginary and otherwise, waste a vast amount of time . Edward Wilding talked to some bored virus killers

Datacrime! Datacrime!! Arggh!!! The dead will rise from their graves, there will be wars and rumours of wars, the mothers will weep and there will be much wailing and gnashing of teeth. Well, actually, no.

In the aftermath of the dreaded Friday, October 13th or 'Virus Day' I attended the latest in a long line of computer virus conferences. This one, entitled 'Computer Virus: Combat and Cure' and organised by CW Communications was actually quite entertaining. The event was chaired by the ubiquitous Dr Alan Solomon who was ably assisted by Ross Greenberg, author of the admirable *Flu-Shot+* anti-virus package.

New things to report? Not many. These events are usually designed to help DP professionals come to terms with the 'virus threat' and tend to vary little in either content or presentation. With on-screen demonstrations of various creepy-crawlies in action, explanations about methods of viral infection, talk of CRCers (Cyclic Redundancy Check if you didn't know), scanning programs and assorted anti-virus paraphernalia it proved adequate as an introduction to the subject. Solomon mentioned all sorts of helpful weaponry to assist in fighting the good fight citing both his 'Toolkit' and the IBM PC User Group quite often.

Ross Greenberg provided a demonstration of the dBase virus. He explained that this particular beast has not escaped into the 'wild' and is really of research interest only. Don't expect to be hit by it and thank your lucky stars that you won't be, because in addition to transposing characters to produce garbage it's also programmed to destroy the hard-disk after 90 days.

A lot of good common sense was spoken during the day. The need for regular backups and warnings against 'clever fixes' such as changing file names, time or date (this is a ludicrous way to try to 'outwit' computer viruses guaranteed to cause interference with day-to-day operations). Most importantly, perhaps the necessity not to jump to hasty conclusions. Solomon cited the worried systems administrator who asked "Is it a virus?" "No," answered the good Doctor, "it's worse, it's a network problem which will take you vastly more time to sort out".

Some people have proposed diskless PCs as the answer to countering the virus problem. "Diskless PCs are pathetic things," said Solomon "I want to do my own backups. Network supervisors may be responsible for taking central backups but the question is - do they? Many of them are two hops ahead of the lynch mob. I want to be sure of my data."

When asked about mainframe viruses Solomon seemed to dismiss the proposition. His reasons? Mainframes are policed, inaccessible and operating systems such as MVS have built-in controls. All perfectly true but why assume that viruses or other malicious programs have to be written by outsiders? Insiders are always the most dangerous because they have access and knowledge - bent coppers exist after all. It's reasonable to say that a virus is an unlikely attack program to run against a mainframe and also there are simpler ways to cause mischief or damage in a mainframe environment.

Revelations

There were some revelations for the audience. Did you know, for instance, that a considerable number of viruses are being passed directly from their authors to the research community? Solomon calls this 'cutting out the middle-man'. As Ross Greenberg noted, this process is probably beneficial to everybody - in effect, researchers (when they're not engaged in endless in-fighting) also act rather like lightning conductors!

Macintosh viruses, which are rife, were discussed very briefly. "It's not a question of whether you're running Mac anti-virus software, but which," said Solomon who predicted the position would be much the same for IBM PC users in the near future.

There were also the obligatory horror stories; the pornographic software package which infected 200 networked computers with the Jerusalem virus in 40 minutes; the 50 stand-alone PCs which succumbed to the 1701 virus (or Cascade or Fall or whatever we choose to call it); and, of course, Disk-Killer from Ogre Software which is the latest, the most infectious and potentially the most destructive virus to have appeared so far. (According to Solomon it's already done 'its thing' in Ealing of all places).

Bringing charges

During lunch I became involved in a fairly heated debate about legal issues pertaining to computer crime. I had asserted that successfully prosecuting a virus writer would be a near impossible task under the law as it stands. Data is not regarded as property in English law and therefore is beyond the protection of the Criminal Damage Act which covers "property of a tangible nature". I was told in no uncertain terms that this was not the case and criminal damage charges could be successfully brought against a virus writer. Fortunately, Jeffrey Chapman, a barrister specialising in the law *vis à vis* computers was able to clear up the matter. Data is not property under English law. Chapman discussed the Law Commission's recommendation for a new offence of unauthorised modification of computer material. Such a law would effectively cover the range of computer crime and misuse.

The quote of the day came from Ross Greenberg; "I want to get back to real work and doing something useful." I wholeheartedly agree - the whole computer virus phenomenon is just a monumental waste of time, skills and effort, and the sooner their programmers grow up the better for all concerned●

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PICK A POCKET

Pocket PCs are already here in the shape of the Atari Portfolio. Will genuinely personal computing be the thing of the 90s? Neil Booth considers the pocket sized scene...

The world's first pocket PC, the Atari Portolio was launched at the Which Computer? Show in February this year, and went on general sale in August. It was the industry's first attempt at a genuinely portable machine.

Though touted as MS-DOS compatible, it only really has an MS-DOS-like operating system, with data transfer being restricted to simple text files. This is done via memory cards, used on the Portfolio as storage 'disks'. An optional memory card drive plugs into your PC at home and the text files can be transferred.

The Atari – already reckoned to have sold over 15,000 in Europe, with 500,000 sales targeted by this time next year – serves not only as a sophisticated organiser but also as a useful 'notepad' which can store text, spreadsheet figures and so on entered on the move. Atari have been keen to stress that the machine is not a 'computing Walkman' but is a genuine computing tool. But it isn't really an MS-DOS machine.

Since then, however, an American company has shown off its Poqet PC. A similar size to the Portfolio, it is a genuine MS-DOS machine, capable of running any standard MS-DOS programs such as *WordPerfect*, Lotus *1-2-3*, *dBase* etc. It can be connected to a standard PC and used as a disk drive, enabling software or data on either machine to be used directly in the other.

It's a higher spec machine than the Portfolio, offers a much bigger screen, and is clearly more versatile and powerful. But you pay for the power – £1,200 as opposed to the Portfolio's sub-£250 tag.

But will it work?

The trend towards miniaturisation of computers raises significant questions. Is a pocket computer, with its restricted keyboard and screen size, going to succeed in the same way that personal stereos have? It can be argued that neither the writer on the move (who really needs a large A4 keyboard of a laptop) nor the business user (who requires a large screen for those spreadsheets and sales demonstrations) would really benefit from too much miniaturisation, and would go for the laptop size machine – which will still go comfortably into the writing case or the briefcase – every time.

Many companies are known to be looking at pocket computers with a view to production in the 1990s. Citizen, for example, demonstrated a prototype at the French Computer Exhibition, Sicob, last April, but are reluctant to give details. It is know, though, that its Research and Development department is working on a 9 x 4 x 1-inch machine.

"Pocket computing is an extremely interesting growth market," says Citizen's Rosemary Gracki, citing the mushroom in laptop sales in the last two years. "But it's difficult to say how successful that market will be. It's just too early to tell how it'll take off".

Atari's Peter Walker is more confident. "The pocket computer straddles both the business and home market, we anticipate launching systems both above and below the Portfolio in terms of size and power," he said. "We had a lot of discussion about the screen size of the Portfolio. but never saw it as an individual product – rather as an add-on for the existing computer owner".

Will the next decade be the age of the genuinely personal computing? The two machines that will be available in 1990, the budget Portfolio and the 'serious pocket computer', the Poqet, will provide the litmus test of pocket computing.●

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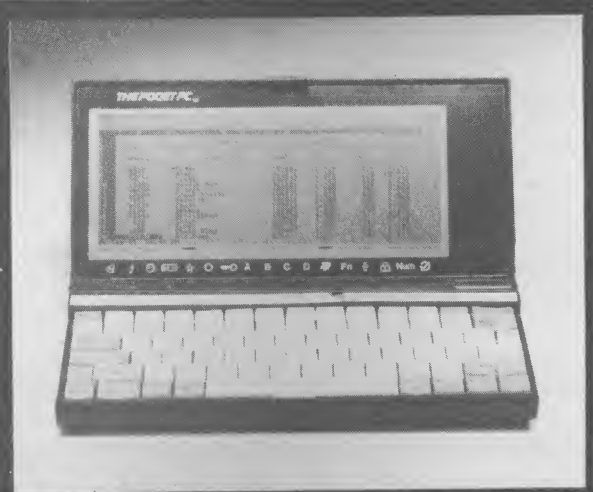

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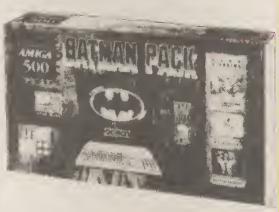

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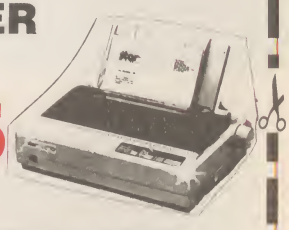

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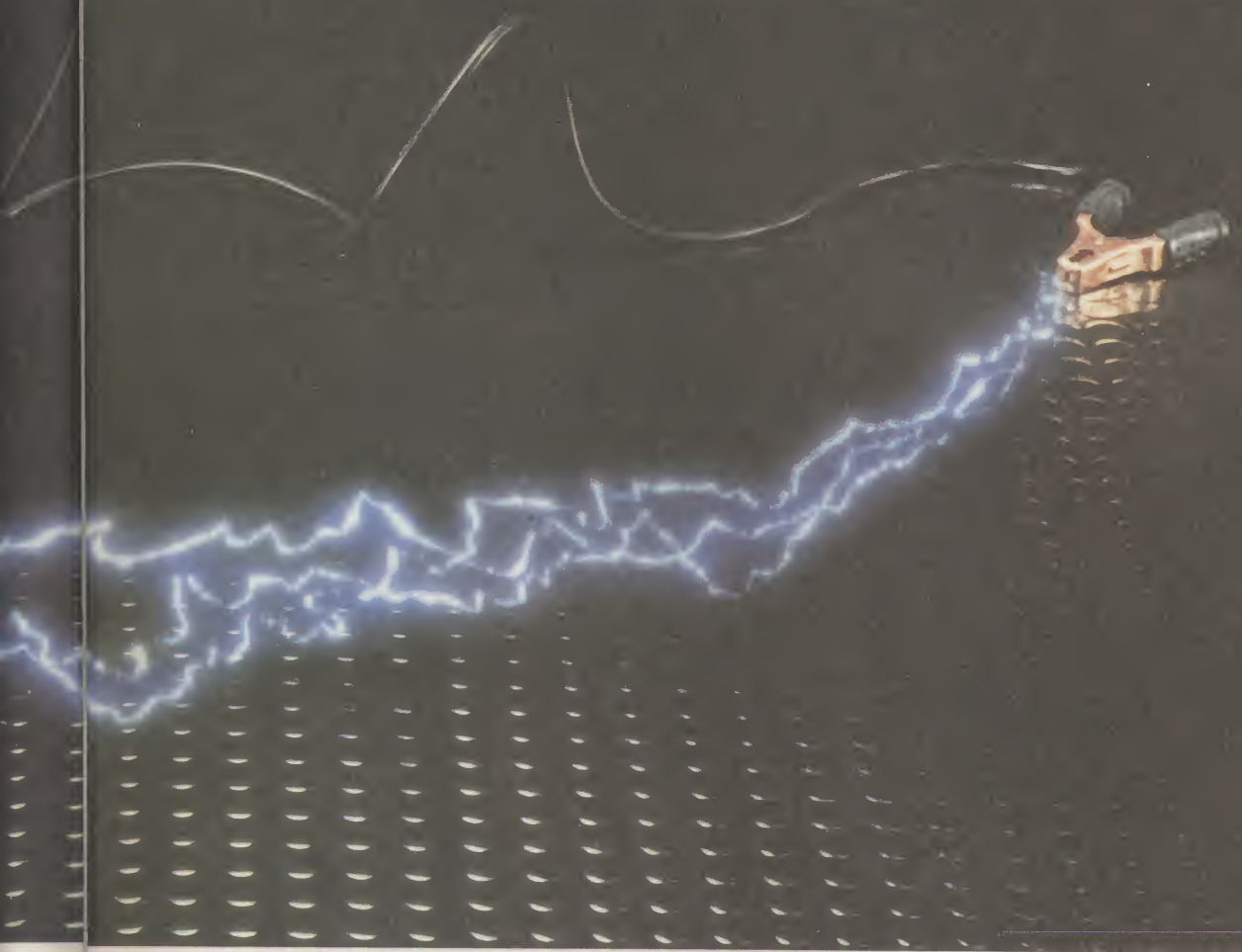

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PS. Sorry, but we just don't have the time to give personal replies, whether you include an sae or not. We're too busy putting Express together!

THE SHOW MUST GO ON

I feel that I must offer a contrary view of the PCW show to that expressed by your correspondent DGW Griffith (issue 49). My attitude and approach are entirely different to his and I imagine many of your readers. I had a 'wish-list' of items to see, and I needed up-to-date prices on scanners, multi-sync monitors and printers. Hewlett Packard's stand was superb. Elsewhere, I found the Cameron colour scanner for the Amiga – renewed various acquaintances – and even met Commodore's latest batch of seekers after niche markets – it's in the art and design department boys!

And why be derisive about "bargain stalls"? Videk's, Monor Court Supplies and First Media all provided plenty of intriguing and well priced temptations. Even the Leisure Hall – for a confirmed anti-gamer – offered plenty of stimulation for all the senses, and a glimpse into another sphere of computing. Good for all of us I'd say!

Even the coffee was good at PCW, so will I be there next year? Send me the usual complimentary ticket and keep the business/ professional days and the answer has got to be yes!

Stuart Langford,Sacriston, Durham

FINE WORDS

I am not a hacker but I do receive copied games and other software from my contacts and have about £1300 worth of copied software. I would like to know what I would get as a punishment if I were caught pirating software and handing copies to other people. Would I get a fine and my equipment confiscated or would I get a short prison sentence?

Steve

• I think that as a casual user you'd probably get away with a hefty fine – certainly more than the value of the software you'd copied. I doubt you'd actually be sent to prison unless you'd been openly selling loads of copies for profit (and if I was a cynic I'd say it depends on whether or not you speak with an Irish accent).

SAM HOPE

I recently wrote off to MGT about info on the SAM, having seen your wonderfully interesting article about it, asking them to send me a few details.

Sure enough I receive a letter – stating that "the information you require...is unavailable at the present time...". You wah? They launch the machine and the PR material isn't ready?! What the heck do they think they are playing at?

This is something rather different from the old Sinclair idea – I seem to remember it as the other way around. You're supposed to launch all the material, praise the machine's characteristics, claim you've seen it up and running, then go home and design it. OK, great I say, to anyone who stops that idea. But please please please don't go to the other extreme!

Geoff Winkless, Kirby Muxloe, Leicester

• We're waiting with breath equally bated for our review copy. Incidentally, did you see the search in the Observer for Britain's Most Successful Young Businessman? The winning candidate – who will, I'm sure, be a self-made millionaire many times over – wins a SAM Coupé.

DEMO MARCHES ON

When supplying shops, mail order companies, etc, the software companies should supply demo versions of their games. These demos, some of which are already supplied to magazines, would ideally be priced as cheaply as possible, say enough to cover the price of the tape/ disk plus a small copying fee. Anyone thus interested in a game could buy the demo version and try it out before splashing out any more cash. I would say a reasonable price for a demo tape to be £1 to £1.50 and a disk to be £2 to £2.50. Also we would need to rely on the software company to provide a decent demo, not a sit-back-and-watch demo and not a demo of an unfinished game. It may not eradicate piracy but if as you and the software companies say, and they are trying to give us consumers the best deal then it may just be one way of showing it.

Wayne B Haywood, Stourbridge, West Midlands

• An interesting thought. A few demos are available virtually for free (on the cover disks of such excellent magazines as ST Format and Amiga Format, £2.95 from all good newsagents) though the number is small. I suspect the costs of distribution would be so high as to make even demos cost a fiver or so apiece.

VIRUS VIEWPOINT

I am delighted that *New Computer Express* has exposed the calumnies of that 'newspaper' (say no more!!) regarding the spread of 'viruses' and the myths that have been current about hacking.

The trouble is that so many publicity seeking people run to the press with stories of their 'achievements' in breaking into sensitive systems – as they must 'in the name of security"! and too much has been said of the insignificant nasty minority that is represented everywhere on documentary and magazine that break in to leave messages and boast about it later. It is they who provide the likes of Emma Nicholson MP with the pretext to make an outlaw of anyone with a halfway decent computer and a modem. Maybe she doesn't like graffiti on loo walls but she can't ban pencils and pens.

I was worried by your reply to J Barret, Northampton: please compare like with like. Piracy is not a single copy given to a friend but running off a lot of copies for sale especially if you claim that you wrote the program in the first place!

John Johnson, Chelmsford, Essex

• Point taken about hackers, but as for piracy, don't be ridiculous. Piracy is making any illegal copy. Whether it's one copy or twenty million, it's still wrong. It's just that no software house is going to bother taking legal action against someone who's made one copy – they'll be more concerned with nailing the underground duplication factories.

DON'T CALL ME

I note that *Express* in seeking to establish a reader to reader helpline, intends to instruct readers replying to ads not to call at unsociable hours when using telephones. Unfortunately this very well intentioned instruction will be ignored.

As I find it more convenient to receive replies by letter I always specify in my adverts that I only want postal replies and no phone callers. This unfortunately does not work, and I actually had a telephone call at half past midnight.

I have a procedure for dealing with these people who disregard my no-phone call request. Firstly I ask for their name and number (telling them just in case we get cut off etc). I then tell them I am not prepared to deal with them, as they cannot respect instructions in the advert. Or alternatively I tell them that there is a £20.00 fee for inconveniencing me on the phone. This solves the problem.

Charles Trager, Glasgow

• You heard what he said. Don't call people who don't want to be disturbed – not everyone is in the mood to guide you through Batman – The Movie at midnight, you know.

RALLYING POINT

I was interested too see your article in issue 49 about the Plymouth Brethren. I enclose an article from our local newspaper concerning the same issue.

Historical fact: Hitler did not 'win' the Nuremberg rallies, as you suggest. They were prime examples of indoctrinating propaganda, like the Tory Party conference.

Jeremy Benson, Bedford

• The business of Hitler 'winning' the Nuremberg rallies was what we in the trade call 'a joke'. If you want more examples of one-line historical 'jokes', try watching Blackadder on Thursday nights on BBC1, which consists of little else.

Thanks for the snippet though – if anyone else finds any mention of computer-related things in their local rags, we'd be glad to receive them.

THOSE BEEB, BEEB GAMES

I am pleased you actually mentioned the Beeb in your top 60 games. Your choices were good ones (except Beeb *Elite* is published by Acornsoft, part of Superior, and *Repton 3* is the one you should be looking out for) but may I also recommend *Imogen* from Micro power, the most addictive game I have seen on any micro (also on *Play it Again Sam 5*), and *PIAS 2*, quite old now but a superb compilation, from Superior.

Jeremy Benson, Bedford

APPALLING CHOICE

I was appalled at your choice of BBC micro games in issue 51. Both the ones you chose were many years old, and didn't come anywhere near pushing the Beeb to its limit. My choice would have been:

1. *Exile* (Superior) – The ultimate arcade adventure.
2. *Firetrack* (Superior) – Amazing shoot-'em-up.
3. *Ultra Intelligent Machine* (The Fourth Dimension 0742 700661) – This *Elite*-style game takes everything that made its predecessor so playable and improves on it.

Rafael Jay, Bath, Avon

...SNIPPETS...

On every letters page in computer magazines, there is a letter complaining about the price of software. Doesn't it make sense to check software etc before buying the computer? If they are so fed up with paying out £25-£30 a time, why not sell the computer and give the whole thing up?
Gary Capstick, Poole, Dorset

• I think there are people who will whinge about anything. If it wasn't the price of software, it would be something else.

Why not run a section where people can send in short (1000-2000 word) stories related to computing? For example, someone against piracy could write a tale about software pirates getting caught. Or Amiga owners could write about the antics of particularly thick ST owners (and vice versa).
Rafael Jay, Bath, Avon

• I'm afraid we have a strict agreement with Bella, Cosmopolitan, She, Woman's Realm et al. They don't review games, and we don't print crappy short stories.

Why can't you see the stamp on the logo at the top of the letters page? It could be misleading if your potential readers in other countries are able to obtain black stamps.
N Goodson, Gt Yarmouth, Norfolk

• The stamp is a penny black, but the postal service to Bath is so slow ...

DRIVEN TO DISTRACTION

With regards to the demise of Mr Harper's disc drive while loading *F-16 Combat Pilot* (*Express* 50) I must insist that in no way can *F-16 Combat Pilot* be held responsible. The protection used on this title is a proprietory system, endorsed by Commodore Technical Department, and is used on several other commercial titles from other publishers. The Amiga version of *F-16 Combat Pilot* was subject to exhaustive testing prior to release of the product, with verification at the technical division of Commodore on every hardware configuration of the Amiga, including versions not even yet released!

It is an unfortunate coincidence that Mr Harper's drive should fail while loading *F-16* but I suspect that it would have happened regardless of which title he chose.

There is nothing particularly "heavy" about the protection used on *F-16 Combat Pilot* and it certainly does not destroy machines as Mr Harper suggests. I understand his frustration – I have been subject to the same problems over the years having published software for many different computers.

Dave Marshall, Digital Integration, Camberley, Surrey

A MYSTERY TO ME

I am completely mystified as to how Digital Integration could put on to the market a game which made me howl with rage and irritation. DI has consistently turned out excellent games and I have bought them all for the last five years.

Despite the assurances of DI on the subject I cannot believe that the constantly repeated nerve-wracking noise emanating from the drive indicated no harm to it. I conclude by congratulating your magazine on being the only one to award this game with an appropriate review percentage. Now I view the reviews of other magazines warily.

Robert Lamb, East Yorkshire

PEDANTS' POINT

(strictly, not a point but a subset of 2-space)

I shudder to think how many Tolkien pedants are going to take you to task for alleging on p62 (*Express* 50) that Arnor is a character in *The Lord of the Rings*. You should be grateful that I'm too merciful and kind to point out that Arnor is in fact a place (specifically a 'lost realm') in *Lord of the Rings*.

It was Thomas J Watson of IBM who said, "I think there is a world market for about five computers". This can be confirmed by a glance into *Facts and Fallacies: A book of definitive mistakes and misguided predictions* by Chris Morgan and David Langford (Webb & Bower 1981; "Brilliant" – Mrs Langford).

David Langford, Reading, Berks

• Several Tolkien scholars have reprimanded me for my lack of Middle Earth knowledge. Sorry, but I never read Lord of the Rings – I read enough fantasy and fiction in other magazines' games reviews.

It's a little known fact that when he said there was a world market of five, Thomas Watson was absolutely right – he was talking about the PC200.

DISAPPOINTMENTS IN PROGRAMMING, PART 2

It is unfortunate that the disaffected freelance programmer is not reaping the financial benefits from his work (*Express* 51) but he has only himself to blame. Being a freelancer he should negotiate a fixed contract with the software company. The company do not have him as an employee and so do not incur the costs that a normal employee would. Surprisingly many companies take advantage of such an obvious fact and pay pitifully low sums to the programming teams.

The freelance programmers/artists are the ones who should dictate the terms to the software companies because they are providing them with their business.

If you are thinking of becoming a programmer within the industry then you had better be bloody good! There is no point in being able to program average games which get average reviews and so average sales. If you're not up to scratch you'll probably end up making average games which have low sales and getting almost nothing for it.

I agree though that ultimately the industry is not really worth entering as a career, unless you're a sales exec or a PR person, because it is open to exploitation.

The industry is not paved with fame and fortune. There are no Porsches as company cars. Come to think of it there is no such thing as company cars. The pay is low compared to the real computing industry, but that's up to you.

Advice: Don't join a development company on a freelance basis. Only accept if they take you on full time.

Never ever accept a contract from a development company. These people are parasites, between you and the publisher. Go straight to the publisher with your finished product.

Only go to the top software houses. If they turn you down, then you need to do better until they accept your product.

A programmer

• The dream of a wealthy programmer, pursued by many, achieved by few

If I were to write a letter that reflected the past three years of my career working in the computer industry (as a freelance graphic artist and programmer), it would probably read something very similar to the letter in issue 51 entitled "Disappointments in Programming".

Time and time again I, and a great number of my friends and colleagues have fallen victims to the con artists that run this industry.

It's all very well saying that contracts should have been sorted out etc but when you need the money to pay the bills, and the contract still hasn't arrived, you're forced into a verbal agreement in the hope that this time the company will be trustworthy. Once you have been caught it tends to become a vicious circle with most companies not paying moneys owed unless you agree to take on further work.

The work I have done has received acclaim in all the popular computing magazines so it's not as if my work is substandard or in anyway justifies non-payment.

In one instance it took a company almost twice as long to pay up than it did for me to actually produce a game for them. At least I did get paid up which makes a pleasant change.

A freelance musician friend of mine is still waiting for payment after doing the music for a game on the Commodore 64 nearly two years ago. I think you could safely say he won't see the money for that. This is so typical of probably 99% of the British home computer games industry. Thankfully, I am no longer involved.

As I am waiting for outstanding payments for several thousand pounds I, as does the programmer in issue 51, feel that it would be unwise to include my name or address.

Another hard working exploited British programmer

Isn't it about time there was a bit less whining from the development community and more action? I am fed up with programmers, artists, musicians and game designers (collectively 'authors') complaining about the raw deal they get – they often do get raw deals, but in the eight years we've had a games industry what have the authors ever done about it?

It is no good expecting the publishers to change their ways because they won't. It's the big guy versus the small guy – and you know who's going to win.

We set up the Society of Software Authors (SSA) because we recognised that there does need to be change – the SSA is a collection of people with similar interests sharing knowledge (including business skills) and protecting our interests as a group. We want to ensure that the relationship between publishers and authors is fair and professional, and that the authors' interests are protected long term.

We're putting together a 'standard' set of contracts, we're tackling the problems of getting royalties paid accurately, business advice to help dealings with publishers, fact sheets on subjects such as copyright, anti-piracy campaigns etc. All this takes time, committment and money.

Most authors we speak to say "Great idea. We've needed something like this for years". Yet many authors won't put their money where their mouth is and actually do something about their problems, and join!

For more details about the SSA and to take part in the survey, please send a stamped, addressed envelope to us at 6 Callow Croft, Burbage, Wilts SN8 3TB.

Jon Dean (Chairman), Society of Software Authors, Wilts

• Well, I can't add very much more to that, but it does sound that a lot of programmers simply never get paid for their work. We've had many letters from programmers, and none from software houses. I wonder why...

WHO'

XMAS 1989 GAMES

PICTIONARY - Domark (12-1)

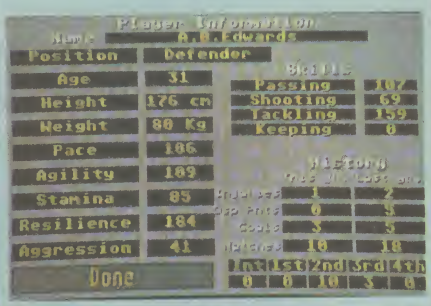
Just like Trivial Pursuit, this is one of those games that gets bought for people because it's "educational, fun and the whole family can play so you won't be stuck in your room on your own all Christmas". Educational I'm not too sure about, but the whole family can play, and it is fun if there are a few of you playing. The fact is, the game's main chances come from Auntie Maude going into W H Smith's and seeing this as a good clean game that "Johnny can play on that computer thingumajog that his mum's got him."

Pictionary should be available on Amiga, ST, PC and C64 any time around now.

PLAYER MANAGER - Anco (9-1)

After the runaway success of *Kick Off*, Anco has decided to capitalise on the software fans obvious love of the great sport of soccer. "'Ere we go, 'ere we go, 'ere we go!" Sorry. That won't happen again. *Player Manager* is an in-depth game involving the running of a football team of your very own. If the standard of *Kick Off* is anything to go by, then this release should be a cracker of a manager game. The best of the genre perhaps? Who can tell. And if it fails, Anco still has the *Kick Off* expansion disk to back it up.

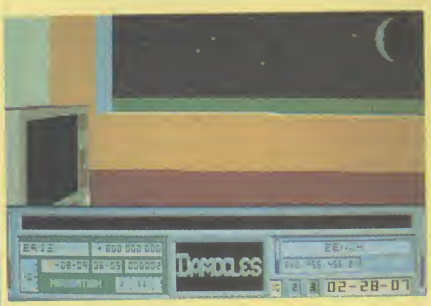
Prospective 16-bit Kenny Dalglishes can "get stuck in" inNovember for £19.95, with other versions soon.



DAMOCLES - Novagen (12-1)

Well this would certainly get to number one in the "Epic wait for a game to be released" charts, as previews of this were being seen years ago. But now it is definitely, certainly, no question about it ready for release... almost. *Damocles* is the real follow up to *Mercenary - The Second City* was just an expansion of the original - with enhanced filled-in graphics, story line and equipment for you to get your teeth into. Despite being waited for for some time now, those initially excited may by now have lost interest.

Paul Woakes' 3D extravaganza should be available on ST and Amiga for £24.95 in November.



POWER DRIFT - Activision (5-1)

Already favourably reviewed on the C64 in last week's Gameplay, *Power Drift* is a racing game with all sorts of cartoon-like atmosphere to it. Despite some odd glitches in the graphics, the game is immense fun to play and should hold its own against other games of the type this Christmas. Whether it will beat the likes of *Hard Drivin'* remains to be seen, but with Amiga, Spectrum and Amstrad versions on the way it certainly isn't beyond the realms of possibility that this will top the charts.

Budding buggyists can experience *Power Drift* in their own homes around late November.

GHOSTBUSTERS II - Activision (9-1)

AAAARGH! Another film license! The cinematic version of *Ghostbusters II* is due to hit the screens on the first of December, so Activision's timing couldn't really have come at a better time to capitalise on the success of the film. A playable demo of the game can be found on the December issue of *Amiga Format* - due on sale November 9th (plug, plug). From this small taster, you may be able to decide whether you think it should be Christmas number one. It can't have too much chance against stuff like *Batman*.

The release of Amiga *Ghostbusters II* should coincide with the film hitting the big screen.

CHASE HQ - Ocean (3-1)

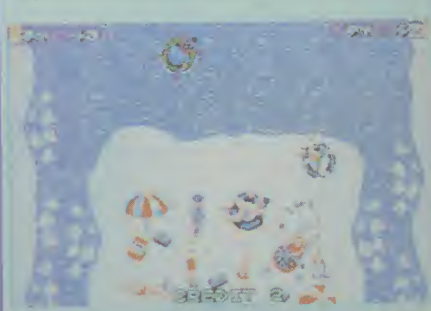
Yet another 3D driving game, this time from Ocean. Licensed from the coin-op, *Chase HQ* places you in control of a super-duper cop pursuit car chasing nasty type criminals around crowded highways. Your car is really hard so you have to smash the villains off the road then leap out and arrest them. Even though there are a number of driving games around this Christmas, *Chase HQ* has to be one of the top contenders for the top slot. Big company, big license...wait and see.

Chase HQ should be available on all major formats early next month.

TOOBIN' - Domark (16-1)

Once more to the Domark stable for yet another arcade conversion. *Toobin'* is a game featuring a race between two friends down a river riding tyre inner tubes. All manner of obstacles are along the trip, including fishermen and crocodiles, which can be disposed of with a carefully flung beer can. The arcade version of *Toobin'* was great fun, and the 16 bit versions look to be coming along very nicely thank you. I personally would like to see this do well at Christmas, as it's a good fun game.

Rubber fans will be able to play *Toobin'* on the ST very soon, with other versions following later.



MANCHESTER UNITED - Krisalis (30-1)

The third of this Christmas' footy games and the second team license. This time the other reds get a look in, with Manchester United fans being catered for. It's all very well releasing an individual game for each team, but the question is how will the market stand up to this many football releases? Oh all right, I'm just sulking because there isn't an Everton game (any software houses listening out there?).

The Amiga version of Manchester United should be available by the time you read this, with the ST version due later this month. All other formats (including Konix and MSX) are to follow in the near future.

'LL BE No1?

Software houses are limbering up their hopefuls in preparation for the big rush to capture that elusive goal...Number One in the Christmas charts. Maff Evans has a look at the up and coming releases and susses out the odds...

TURBO OUTRUN - US Gold (4-1)

Another driving game to add to the fray. We've seen parts of the C64 version (as being written by Probe Software) and it's looking rather good. A lot of people around these parts think that it's in with a chance of topping the charts, putting the odds quite even. True it is "just another driving game" but it has the well oiled promotion machine that is US Gold behind it. (Witness the Ferrari Testarossa on its stand at the recent PC Show.) As good a reason as any not to rule it out!

The C64 version of *Turbo Outrun* should be available soon, with16-bit versions to follow.

HARD DRIVIN' - Domark (4-1)

Probably one of the biggest licenses this year, *Hard Drivin'* is a solid 3D driving game featuring such devilish challenges as an open bridge and a terrifying loop the loop - not to mention dashed difficult gameplay. The arcade version found many fans with its superb sound and super-fast, super-smooth, filled-in vector graphics and Domark is hoping to please the coin-op fans. Early versions do indeed look promising - many of the original elements are there, including the smooth, solid 3D and that loop!

Hard Drivin' will be out on Amiga, ST, C64, CPC and Spectrum on November 22nd.

MOONWALKER - US Gold (5-1)

It looks like "Attack of the Genre Zombies" around here - here comes yet another film license. The film itself was pretty strange, what with good old Wacko Jacko turning into a rabbit (that happens in the game too), filling gangsters with lead (Michael Jackson committing acts of violence?!!) and whizzing around as a robot. The game looks rather nice and some fun to boot, but the question is that will the success of the game match up to the success of Michael's hit album?

US Gold's musical game should hit the shops on sixteen bit soon.

UNTOUCHABLES - Ocean (6-1)

Not content with trying to reach the top with one film license, Ocean is having a crack with their interpretation of the stupendous Brian DePalma film. Computer users can now take the part of Kevin Costner taking the part of Elliot Ness trying to catch Robert DeNiro taking the part of Al Capone (Confused? You will be after....sorry wrong plot). The game features several different styles of play to portray different sections of the film. But you still can't get Sean Connery on a computer can you? Now there's a challenge!

Untouchables should be out late November on ST, C64, Spectrum and Amiga.

LIVERPOOL - Grandslam (35-1)

Another attempt to cash in on the nation's favourite sport, this time with a license to produce a game aimed at a more specific fan. For all those computer-owning reds fans not content with just watching their team's classic moment's on video, the game allows Liverpool followers to put themselves in the shoes of their glorious player-manager (Kenny Dalglish, you bozo). The Liverpool videos do quite well, but any game will have to go some to overpower Anco's tip for the top - *Player-Manager*.

C64, PC and ST owning Liverpool fans should be able to get stuck in later this month.

DOUBLE DRAGON 2 - Melbourne (15-1)

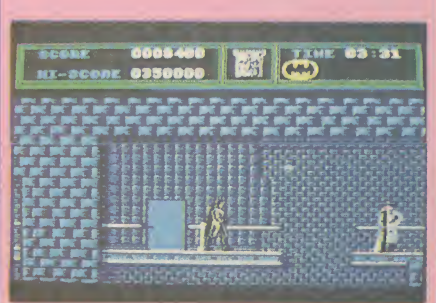
Not quite capturing the Christmas spirit of peace and goodwill, this sequel to the successful two-player thump and smash arcade game should prove popular with Kung-Fu fans everywhere. Taking place after the rescue of the fair maiden in the original *Double Dragon*, the sequel has you chasing the Shadow Boss once more after he brutally guns down your girlfriend. The conversions of the original game weren't too well received by the press, but managed to do quite well with the public .

Double Dragon 2 should be available on all formats in early November.

BATMAN - Ocean (5-2 fav)

Despite having been around for quite a while now, *Batman* is still looking strong in the software sales department and it appears that it could hold on to its top spot over the Christmas period, particularly with people buying new machines. Well, let's face it, it's a big license...we're talking STONKINGLY huge license! What's more it's a darned good game to boot. Ocean occupied the number one slot last year with *Robocop* - can it do it again this year? Most people seem to think so.

Batman is available on all formats now, except for PC.



WRITING YOUR OWN GAMES

'Ya see guv, I got this idea, right? I'm gonna write meself a game an' make loadsa dosh. Got that?' Mark Higham shows you how it's done.

HOW GOOD A PROGRAMMER DO I HAVE TO BE?

You don't need to be a Bitmap Brother to write a game, especially with all the game creators now on most home micros. These let non-programmers build their own game but there are restrictions on the type of game. It's important to realise your limitations in game design. If, from the outset, you can't make your game run fast enough, then forget it, go for a strategy game where speed isn't as essential.

If you can handle it, you can't beat taking lessons in C or Assembler but screen shifting can give even seasoned programmers a lot of headaches.

WHAT SOFTWARE CAN I BUY?

Depends on what you want to do. Software like *SEUCK* and *Talespin* doesn't require any programming knowledge, just a good imagination but you can only write shoot-'em-ups or adventures. Then there is *STAC*, *STOS* and the soon-to-be-released, *AMOS* where you learn a simple programming language geared towards game creation. The results from these are far more inspired.

If you're intent on programming then there are hordes of BASIC, C and Assembler programs available. Providing you can compile into machine code you'll be able to write a game.

HOW DO I DESIGN THE SPRITES, GRAPHICS AND BACKDROPS?

Even graphics used in game creators can be designed within an art package. *Tailspin* has its own editor but you're better off sticking to an art program. *SEUCK* is the only one which won't let you import graphics.

Degas *Elite* on the ST and *Photon Paint II* on the Amiga (both from Electronic Arts) are the undisputed leaders for game graphics. They provide some essentials including detailed close-ups letting you edit each pixel, and the opportunity to create your own fill patterns. Extras like airbrushing vastly improve your graphics and should always be sought.

HOW DO I PROGRAM THE SOUNDS?

You can't 'program' the sound as such. It's possible to create your own music using dedicated sound chips but you need to have a good idea how music is constructed. For ordinary effects such as engine noise and explosions, this is no problem but when you want speech or music then your stuck. Here, it's a good idea to invest in a sound sampling package. These let you grab sounds directly from cassette or microphone and use them within your game. Sudden screaming and a good beat introduces lots of life.

HOW MUCH WILL IT COST TO CREATE MY OWN GAMES?

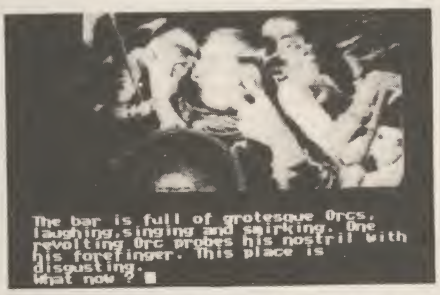
This depends on the machine. With an ST or Amiga, you need to purchase your game creator, usually no more than £30, a decent graphics package for around £40 and a sound sampler for the same amount. If you want to turn to programming then you need to get fistfuls of manuals..

There's one vital expense that's been missed here and that's the machine. Okay, you've got your game running on an ST, but what if you want to convert it to run on an Amiga? Machines aren't cheap.

WHAT'S THE BEST MACHINE TO WRITE GAMES ON?

There's a lot of dosh in the 16-bit market, particularly if you're converting across several machines. This needn't be as horrendous as you'd expect. The best method is to find identical software on different formats, such as GFA BASIC, available on the ST and Amiga. Here, you can write your game on one machine and port it across to the other with only a few changes necessary.

If you're writing in C code or 68000 then you can port code between ST, Amiga and PC with only screen-related routines requiring alteration.


The bar is full of grotesque Orcs; laughing,singing and smirking. One revolting Orc probes his nostril with his forefinger. This place is disgusting.
What now ?

• STAC, the ST Adventure Creator, is a program designed to help you write your own adventures. you define the 'world', add pictures, describe potential events, set traps and so on and the program does the rest

I'VE WRITTEN MY GAME AND I WANT TO SELL IT – WHAT THEN?

Either you can decide to market your game yourself or you can take it to a software house and hope they'll market it for you. Unless you've got vast amounts of money then resort to the second method even if profit margins seem less enticing. Look for a software house that produces similar games. For example, if you've written another *Dungeon Master*, send it to Mirrorsoft, it knows how to market this type of game. Either you'll hear it doesn't want it, or it'll ask you to make changes. Most companies can spot potential in a game even if it has appalling graphics.

HOW MUCH DOES IT COST TO GET MY GAME DUPLICATED, PRODUCE THE MANUAL AND PACKAGING?

Costs depend on quantity. If you want less than a 100 copies you can do duplication yourself and pick up video or CD cases for little more than 50p each. If you want the game professionally copied, go to a disk copiers who'll charge between 50p and 65p per disk. Add an extra 2p to this for labels. 1000 labels can be copied for around £40. Depending on the quality and size of the manual, you can photocopy it or take it to a local copiers where they'll reproduce it for around £35 for 1000 A4 copies.

HOW DO I GET THE GAME REVIEWED IN THE MAGAZINES?

You can send the game to magazines and hope they'll like it. To make sure of coverage telephone the magazine to let them know it's coming and then check the reviewer hasn't lost it in a corner two weeks later. Don't worry if it's not packaged. Even the US Golds and Mirrorsofts of this world send most of their reviewable products out without packaging.

If you really want to make sure your game gets in then a two-week holiday in America for all the journalists would ensure some big coverage.

HOW MUCH DOES IT COST TO ADVERTISE?

Advertising rates depend on the magazine, the space you want and the amount of colour. Adverts can be black and white, spot colour or full colour. Most game adverts are in full colour. Spot colour is when monochrome adverts have selected areas recoloured with one or two extra colours.

At £300 for a quarter page, monochrome is the cheapest. Full colour is typically £600 for a quarter page and £1000 for a full page. Those double-page adverts you see for games like *Ghostbusters* can cost around £2000 each.

HOW MUCH MONEY WILL I BE ABLE TO MAKE?

Surprisingly, there's not as much dosh in programming as you might think. Unless you have a major hit on the scale of *Populous*, you're unlikely to make enough to cover the insurance of a Porsche, let alone the car itself. With conversions of a reasonable game, you can be looking at making around £5000 as long as you can get it into WH Smith's and Boots.

This is why it's inadvisable to market it yourself. Do this and unless you have the dosh to splash out on enormous amounts of colour advertising, you're unlikely to sell many more than ten copies.

HAS ANYONE MADE A REAL SUCCESS OF MARKETING THEIR GAME?

Games that have been written using a game creator have rarely made it far although a handful have been released. Mandarin is bringing out *Games Galore* – a set of four *STOS* games and there's another one following soon after. Microdeal has also released *The Grail Quest*, written using their *Talespin* adventure creator.

Writing your own from scratch is where the money is and there are a host of games that are testament to this – *Bloodwych*, *Wicked* and *Stormtrooper* were all written this way.

ARE THERE ANY CLUBS WHERE I CAN MEET PEOPLE WHO MIGHT BE INTERESTED IN CO-WRITING A GAME?

There aren't any clubs where you can meet other programmers but there are ways to share common interests. One of the most productive is to join a user club and you'll receive a regular newsletter and other benefits. There are *STOS*, *STAC* and GFA user clubs which all cater for programmers. If you want to build up a wider audience then turn to bulletin boards for comfort. A number are run by programmers – even the Bitmap Brothers have one – and this is a good way to build up contacts and solve problems.●

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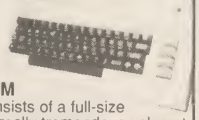

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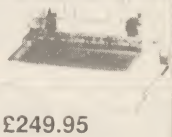

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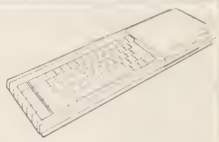

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SILICON BRAINS

Puzzled by all those references to brain-like chips? Andy Storer dons a white coat and performs some silicon surgery on the neural networks

1989 can be rightly said to be the year in which neural networks came of age - it's seen the number of neural network research and development projects increased dramatically to the point where practical applications are being field tested, and in some cases, deployed. There are 10,000 neural networks in the US alone - with at least 50 neural products available on the open market. IBM, AT&T, Hitachi, Fujitsu, NEC, Sony - all the world's leading hi-tech companies are working on the next step forward in machine intelligence.

Heralded as a revolutionary technology, combining with recent hardware advances in parallel and optical processing to form the sixth generation of computing, neural nets are primarily seen as providing the software solution to the problems of machine vision and robot control. But their applications extend into any areas for which no known algorithm or set formula exists - areas which by their very nature are full of pitfalls in logic - speech recognition, stock market prediction, handwriting analysis - areas for which knowledge can only be a product of learning through experience. So how do you go about building a neural network and why all the fuss?

We ain't so smart

Adaptive Systems Engineering is what a neural net is all about - a series of techniques by which computers can be trained to recognise patterns in apparently chaotic or random situations. Humans are quite good at this kind of thing - to differing degrees of course - but any human specialism is merely a product of learning by example. After all, even the human quality said to most mark us apart from other forms of intelligence, intuition, only results from learning by mistakes - even the wildest guess is based on some form of experience. Of course, conventional computers were only ever built to assist us in rather mundane tasks - functions which the human brain, running at only 0.1 MHz in computing terms, would take an eternity to do. The fact that they're now seen fit to be given new responsibilities is testament to how well they've served us so far. For if there's one thing you can rely on a computer for, it's the ability to remember. Aside from negative external effects and human mistakes it'll never forget anything it's told. So if you combine massive memory with structured learning you have a machine that is able to recognise, interpret and act upon disparate, unconnected data right? Well, in theory...

Learning to forget

Although the brain does run comparatively slowly, its immense power is derived from the fact that there are 3,000 billion synapses connecting its neurons - each one performing a single operation. Like the brain, neural networks are made up of large numbers of individual processing elements or 'neurons' interconnected by data paths or 'synapses'. A neuron is simply a device which provides a single output value from one or more inputs - but the value of that output depends on the strength of the input and the 'weight' each input is given. Weighting is set by a developer or managing expert system and in the first instance is simply a means of training a network to recognise an input.

Theorists believe that our synapses strengthen or weaken according to the frequency of use, and that this is the physical method of learning and forgetting. Just like a child, a neurocomputer, can't be programmed - it must be trained. As such it must be repeatedly subjected to examples of material to be learned and given positive or negative feedback according to what it is meant to achieve. The weighting factors are adjusted so that the neurons 'remember' to respond automatically in a given way to specific information input. Since a weighting can be either positive or negative, enabling input values to inhibit as well as encourage a response, a neurocomputer can be taught to forget as well as learn.

By their very nature, neural networks don't process information centrally in a CPU - they use distributed processing in which tasks are distributed within the entire network. Although the majority of systems in use are software simulations running on conventional computers, companies like AT&T, Siemens and Hitachi are developing neural chips. Hitachi is rumoured to have prototyped a wafer-scale chip containing 576 neurons. A computer with even the remotest human faculties is some way off though - the our brains have over a 100 billion neurons inside each of them.●

In two weeks time Express *will be assessing neurocomputing advances around the world and looking in more detail at the practicalities of neuro-programming.*

ALARMINGLY SMART ROBOTS

Neural technology is principally geared towards industrial applications like factory automation - robot vision being the prime objective. Once artificial vision is cracked, neurocomputers will be able to learn merely by watching humans perform tasks - the implications of this are anyone's guess. Indeed, as with most technological advances, the military's well in there - the U.S.'s Defence Advanced Research Projects Agency is spending $33 million on a research programme to produce 'smart weapons'.

TOP TEN NEURAL APPLICATIONS

Since they're modelled on the human brain, it follows that neural networks excel in areas where humans out-perform computers. These break down to three main areas - pattern recognition, associative memory (the ability to deal with ' fuzzy data') and adaptive learning. The main applications are therefore :

- **Pattern recognition**
- **Speech interpretation**
- **Financial systems**
- **Predictive modelling**
- **Object identification**
- **Handwriting analysis**
- **Image compression**
- **Risk analysis**
- **Commodity stock trading**
- **Expert systems**

and in this country the principal players are :

- **Plessey**
- **British Aerospace**
- **Philips**
- **Henley Centre for Economic Forecasting**
- **British Telecom**
- **Royal Signals and Radar**

If you're interested in learning more about neurocomputing the main British universities engaged in research are: Edinburgh, London, York and Stirling.

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THE SHOPPING EXPRESS BUYERS' GUIDE TO 50 TOP PCs

Looking for a PC? Let *Express* help you make the right choice. Here's a definitive list of the top 50 PCs on the market with the vital details on each.

Each PC is listed alphabetically, with the manufacturer's phone number and the recommended retail price. It is often possible to get a better deal than this, especially by mail order - check out the advertisements in this issue.

Below the price is the technical specification of that computer; which microprocessor it has, how much memory, what kind of graphics display it uses, which disk drive, what input and output ports it's supplied with and any extras the manufacturer throws in.

POWER RATING

We've worked out a power rating for each machine. Does it pack the punch you need? Anything under 50 is fine for most uses - word processing, running a club or small business, playing the odd game - while if you're after power computing you'll need a machine round the 100 mark. It's only a rough guide, of course, and only has a meaning relative to the other ratings. Check the tech specs to see if it'll do the specific things you need.

For the curious, here's how we worked out the power ratings. 386: 30 points, 286: 20 points, V20/40: 15 points, 86: 10 points, 88: 5 points, serial ports 2 points each parallel ports 2 points each, expansion slots 2 points each, 2.5Mb: 25 points, 2Mb: 20 points, 1Mb: 10 points, 640: 8 points, 512: 5 points, hard drive: 15 points, 3.5: 10 points, 5.25: 5 points VGA: 20 points, EGA: 10 points, CGA: 5points.

DESIRABILITY RATING

There's also a desirability rating out of 100 - although the power rating is the most important, this indicates essentially 'how good' the machine is. This takes into account intangibles such as build quality and appearance as well as the perceived 'slickness' of the machine. Anything with single figures you'd be happy to get for Christmas but wouldn't walk down the road to buy. 30s and 40s would be worth a trip out of town to get. Anything over 90 and you'd sell your house and all its contents to buy one.

VALUE FOR MONEY

Finally there is the value for money rating. Measured out of five, the star rating indicates just how much computer you get for your pound.

● AMSTRAD PC1640

£499 • 0277 228888 • 8086 CPU (4.77/8MHz) • 640K RAM • EGA • 1 parallel port • 1 serial port • 3 expansion slots • 5.25 floppy • GEM, mouse and bundled software

Bottom of the - usable - range Amstrad PC. Plastic case of flimsy construction containing only three expansion slots and supporting a poor quality monitor which also houses the power supply (making it next to impossible to upgrade a mono system to colour). The package includes a GEM graphic operating system as well as MS-DOS and a mouse. Enjoys the somewhat ambiguous distinction of being cheap.

Power: 43
Desirability: 15

VALUE FOR MONEY: ★★★

● AMSTRAD PC2286

£999 • 0277 228888 • 80286 CPU • 1Mb RAM • VGA • 1 parallel port • 1 serial port • 5 expansion slots • 40 Mb hard drive • mouse and bundled software

The Amstrad stab at high tech. Good quality VGA display let down by plastic machine with enormous footprint and slow hard drive. The machine is at least supplied with a reasonable - if not generous - supply of expansion slots.

Power: 79
Desirability: 50

VALUE FOR MONEY: ★★★

● APRICOT XEN-S PC

£1495 • 021 456 1234 • 386SX CPU • 1Mb RAM • VGA • 1 parallel port • 2 serial ports • 3 expansion slots • 30Mb hard drive

Well-known for attempts at providing powerful computers, the XEN-S PC is Apricot's mid-range 386 machine. Reasonable construction, moderate keyboard but expensive.

Power: 87
Desirability: 60

VALUE FOR MONEY: ★★

● ARC PT88-1

£810 • 01 684 1948 • 8088 CPU • 640K RAM • CGA • 1 parallel port • 2 serial ports • 4 expansion slots • 5.25 floppy • paper white monitor

Arc's bottom of range computer. A well made machine which, although expensive, comes with 4 expansion slots and a paper white monitor.

Power: 37
Desirability: 20

VALUE FOR MONEY: ★★

● ARC PT 88-2

£1140 • 01 684 1948 • 8088 CPU • 640K RAM • CGA • 1 parallel port • 2 serial ports • 4 expansion slots • 20Mb hard drive • paper white monitor

One of a large range of PC compatibles from ARC, the PT88-2 is a well made computer which suffers from being a little expensive.

Power: 47
Desirability: 30

VALUE FOR MONEY: ★★

● ARC T304

£3650 • 01 684 1948 • 80386 CPU • 2Mb RAM • VGA • 1 parallel port • 2 serial ports • 8 expansion slots • 40Mb hard drive (and twin floppies) • paper white monitor

Starter computer for Arc's top the range machines, the T304 with 386 central processor, 40Mb hard drive and paper white monitor is an excellent machine.

Power: 107
Desirability: 85

VALUE FOR MONEY: ★★★★

● ATARI PC3

£949.99 • 01 309 7770 • 8088 CPU • 640K RAM • EGA • 1 parallel port • 1 serial port • 4 expansion slots • 30Mb hard drive • mouse

Atari's foray into the PC compatible market opens with the PC3. Cheap, well made useable machine which commands consideration from anyone searching for a first PC with hard drive on a limited budget.

Power: 50
Desirability: 45

VALUE FOR MONEY: ★★★

● ATARI PC5

£2799.99 • 01 309 7770 • 80386 CPU • 2Mb RAM • VGA • 1 parallel port • 1 serial port • 5 expansion slots • 60Mb hard drive (with high performance controller card) • 1.2Mb floppy

The last word in PC power from Atari, the PC5 is aimed fairly and squarely at the 'power user'. Superior specifications and a very reasonable price ensures its success in the high-end market place.

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REPAIRS FOR AMIGA AND ATARI

Power: 99
Desirability: 75

VALUE FOR MONEY: ★★★★

● BROTHER BC10

£780 • 061 330 6531 • 8088 CPU • 640K RAM • CGA • 1 parallel port • 1 serial port • 4 expansion slots • 20Mb hard drive

Better known for quality printers, Brother's BC10 PC is an attempt to conquer the compatible market. Reasonable specifications and quality construction coupled with aggressive pricing gives the machine a head start in the market-place.

Power:45
Desirability: 38

VALUE FOR MONEY: ★★★

● COMMODORE PC10

£549 • 0628 770088 • 8088 CPU • 640K RAM • CGA • 1 parallel port • 1 serial port • 3 expansion slots • 5.25 floppy

Entry level PC compatible from home computer manufacturer Commodore. Well made, good keyboard but a little expensive.

Power:33
Desirability: 20

VALUE FOR MONEY: ★★★★

● COMMODORE PC 60-80

£2999 • 0628 770088 • 80386 CPU • 2.5Mb RAM • VGA • 2 parallel ports • 2 serial ports • 8 expansion slots • 80Mb hard drive

Power computing for the people! The PC60-80 is one of the most powerful of the affordable 386 machines on the market. The computer is thoughtfully designed, well made and at this price, sports unbelievable potential.

Power: 114
Desirability: 95

VALUE FOR MONEY: ★★★★

● COMPAQ DESKPRO 286

£1495 • 01 332 3000 • 80286 CPU • 640K RAM • VGA • 1 parallel port • 1 serial port • 7 expansion slots • 20Mb hard drive • 1.2Mb floppy

Renowned for quality, powerful - if expensive - computers, the DeskPro 286 carries on the tradition of Compaq.

Power: 66
Desirability: 55

VALUE FOR MONEY: ★★★

● COMPAQ DESKPRO 386

£2195 • 01 332 3000 • 80386 CPU (20MHz) • 1Mb RAM • VGA • 1 parallel port • 1 serial port • 7 expansion slots • 20Mb hard drive • 1.2Mb floppy

Compaq's top of the range power computer. Highly desirable machine featuring a 20MHz 386 central processor, clean construction, good keyboard etc.

Power: 83
Desirability: 80

VALUE FOR MONEY: ★★★

● DELL SYSTEM 325

£5699 • 0800 414535 • 80386 CPU • 1Mb RAM • VGA • 1 parallel port • 2 serial ports • no expansion slots • 320Mb hard drive

Dell is generally regarded as being the power computer manufacturer and the System 325 machine does nothing to dispel the fact. Powerful and with an enormous disk drive. A desire for power and bulging coffers are the necessary qualifications for this machine.

Power: 81
Desirability: 90

VALUE FOR MONEY: ★★★

● DOLAN XT

£599 • 026784 538 • 8088 CPU • 640K • Hercules • 2 serial ports • 2 parallel ports • 8 expansion slots • 40Mb hard drive • bundled software

Cheap entry-level XT from Dolan. Very good value for money, with a paper white monitor and fast hard drive. Recommended.

Power: 60
Desirability: 60

VALUE FOR MONEY: ★★★★★

● DOLAN AT

£1025 • 026784 538 • 80286 CPU • 1Mb RAM • EGA • 2 serial ports • 1 parallel port • 5 expansion slots • 45Mb hard drive • mouse, bundled software

Top of range Dolan AT which includes a fast hard drive, Microsoft mouse and Windows in the low price.

Power: 65
Desirability: 70

VALUE FOR MONEY: ★★★★

● ELONEX PC 88-C

£695 • 01 965 3225 • V20 • 640K RAM • CGA • 1 parallel port • 1 serial port • 2 expansion slots • 20Mb hard drive • GEM, mouse

Budget computer manufacturer. The PC 88-C is Elonex's entry level machine. Sporting a fast V20 processor and 20Mb hard drive for a miniscule 700 quid the machine deserves a place at the top of any budget PC shopping list. Well made and reliable.

Power: 51
Desirability: 40

VALUE FOR MONEY: ★★★★

● ELONEX PC286S-120

£1495 • 01 965 3225 • 80286 CPU (12MHz) • 640K RAM • CGA • 1 parallel port • 2 serial ports • 3 expansion slots • 40Mb hard drive • GEM, mouse

Mid-range Elonex compatible featuring 40Mb hard drive and a small footprint.

Power: 58
Desirability: 40

VALUE FOR MONEY: ★★★★

● ELONEX PC 382S-200

£3095 • 01 965 3225 • 80386 CPU • 1MB RAM • VGA • 1 parallel port • 2 serial ports • 3 expansion slots • 320Mb hard drive • GEM, mouse

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Power: 87
Desirability: 75

VALUE FOR MONEY: ★★★

● EPSON PCE HD

£1199 • 0442 61144 • 8088 CPU • 640K • CGA • 1 parallel port • 1 serial port • 3 expansion slots • 20Mb hard drive

Epson provided the industry standard for 9-pin printers and control codes but is not going to set any standards with the PCe. Expensive and underpowered - it's a dodo.

Power: 33
Desirability: 0

VALUE FOR MONEY: No stars

● EPSON AX FD

£1599 • 0442 61144 • 80286 CPU • 640K • CGA • 1 parallel port • 1 serial port • 7 expansion slots • 5.25 floppy

Mid-range Epson 286-based PC. Incredibly overpriced.

Power: 51
Desirability: 2

VALUE FOR MONEY: ★

● EPSON AX80 HD

£2499 (excl. monitor) • 0442 61144 • 80286 CPU • 640K • CGA • 1 parallel port • 1 serial port • 6 expansion slots • 80Mb hard drive

Ridiculously overpriced top of range computer from Epson. Price does not include a monitor (!).

Power: 64
Desirability: 0

VALUE FOR MONEY: ★

● IBM PS/2 30

£1298 • 01 747 0747 • 8086 CPU • 640K RAM • EGA • 1 parallel port • 1 serial port • 3 expansion slots • 3.5 floppy

IBM's starter machine. Very well made, reliable and with the backing of Big Blue. Not cheap, but then the best always costs a little more, right?

Power: 48
Desirability: 75

VALUE FOR MONEY: ★★

● IBM PS/2 50

£2389 • 01 747 0747 • 80286 CPU • 1MB RAM • VGA • 1 parallel port • 1 serial port • 3 expansion slots • 20Mb hard drive

From the company that started it all, the mid-range computer. All the superlatives associated with the model 30 and 10 times the desirability.

Power: 65
Desirability: 95

VALUE FOR MONEY: ★★

● IBM PS/2 80

£4407 (from) • 01 747 0747 • 80386 CPU • 2MB RAM • VGA • 1 parallel port • 1 serial port • 7 expansion slots • 44-314Mb hard drive • 1.2 Mb floppy • floor standing

The computer from the computer company.

Power: 103
Desirability: 100

VALUE FOR MONEY: ★★

● NEC POWERMATE 1

£1395 • 01 993 8111 • 80286 CPU • 640K RAM • VGA ° 1 serial • 1 parallel • 6 expansion slots • 20Mb hard drive

NEC's entry level computer. Fast but expensive.

Power: 59
Desirability: 50

VALUE FOR MONEY: ★★★

● NEC POWERMATE 386 20

£5895 (excl. monitor) • 01 993 8111 • 80386 CPU • 2Mb RAM • VGA 2 serial ports • 1 parallel port • 8 expansion slots • 300Mb hard drive

Top of range NEC 386-based machine. Vast power but an expensive buy.

Power: 95
Desirability: 65

VALUE FOR MONEY: ★★

● NESS AT-286 S

£1195 • 01 806 1072 • 80286 CPU • 512K RAM • CGA • 2 parallel ports • 1 serial port • 5 expansion slots • 20Mb hard drive

Mid-range PC compatible notable only for its non-conformist specifications!

Power: 61
Desirability: 30

VALUE FOR MONEY: ★★

● OPUS PCIII SF TURBO

£549 • 0733 765080 • 8088 CPU • 256K RAM • CGA • 1 parallel port • 1 serial port • 7 expansion slots • 5.25 floppy

The UK's second largest PC compatible manufacturer (Amstrad being the first) Opus have a fine reputation for quality machines. The PCIII is ideal for use as a LAN terminal.

Power: 34
Desirability: 30

VALUE FOR MONEY: ★

● OPUS PCIV TURBO

£995 • 0733 765080 • 80C88 CPU • 768K RAM • CGA • 1 parallel port • 1 serial port • 2 expansion slots • 20Mb hard drive

Mid-range Opus machine which is reasonably priced but lacking in expansion options.

Power: 41
Desirability: 40

VALUE FOR MONEY: ★★

● OPUS PCVI TURBO

£1295 (from) • 0733 765080 • 80286 CPU • 1Mb RAM • VGA • 1 parallel port • 1 serial port • 5 expansion slots • 60Mb hard drive • mouse port

Top of range computer from Opus featuring good specifications and a reasonable price.

Power: 79
Desirability: 65

VALUE FOR MONEY: ★★

● PHILIPS NMS 9115

£799 • 01 689 2166 • 8088 CPU • 640K RAM • EGA • 1 parallel port • 1 serial port • 4 expansion slots • 20Mb hard drive

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- ★ All leads, manuals and mouse.

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£529.00

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good reputation in the consumer electronics market place for good quality, reliable and well made equipment. The NMS 9115 is the mid-range PC compatible from the company, offering decent specifications and a moderate price, the machine is worth more than a cursory glance.

Power: 50
Desirability: 45

VALUE FOR MONEY: ★★★

● PHILIPS PC FAX 2

£1049 • 01 689 2166 • 8088 CPU • 640K RAM • DGA • 1 parallel port • 1 serial port • 4 expansion slots • 20Mb hard drive • internal FAX card

The Philips PC Fax-2 offers the unusual add-on of a FAX card included in the price. An ideal computer for those concerned with communication as well as computing.

Power: 50
Desirability: 60

VALUE FOR MONEY: ★

● RSC 386T 20

£2229 (from) • 0923 243301 • 80386 CPU • 2Mb RAM • EGA • 1 parallel port • 2 serial ports • 8 expansion slots • 40-122Mb hard drive

Top of the range 386 computer from relative newcomer RSC. Thoughtful design and quality construction guarantee the machine a share of the market.

Power: 97
Desirability: 75

VALUE FOR MONEY: ★★★

● SAMSUNG SPC 3000/2

£699 • 01 391 0168 • 8088 CPU • 640K RAM • CGA • 1 parallel port • 1 serial port • 7 expansion slots • 5.25 floppy

Entry-level PC compatible from Korean computer manufacturer Samsung. The SPC3000 offers a good range of expansion options, quality construction and reliability.

Power: 41
Desirability: 50

VALUE FOR MONEY: ★★

● SAMSUNG MFC 6000/2

£1499 • 01 391 0168 • 0168 • 80286 CPU • 1MB RAM • EGA • 1 parallel port • 1 serial port • 6 expansion slots • 20Mb hard drive • 1.2Mb sloppy

Samsung's attempt at attracting the power user, the MFC6000 computer is powerful and like all Samsung computers, well made and reliable.

Power: 45
Desirability: 47

VALUE FOR MONEY: ★★★

● SCHNEIDER EURO PC

£458.85 • 0604 766572 • 8088 CPU • 512K RAM • CGA • 1 parallel port • 1 serial port • 1 expansion slot • 3.5 floppy • bundled software

Entry-level PC compatible which breaks with the traditional '3 box' style of PC design and instead, includes motherboard and drive in the keyboard (similar to Atari ST and Commodore Amiga) - fine but where do you put expansion cards? There is one expansion port at the rear of the computer the use of which entails having your add-on hanging free at the exposed rear. Definately for those with severely limited budgets (for another £50 you can have the Amstrad PC1640).

Power: 31
Desirability: 5

VALUE FOR MONEY: no stars

● SCHNEIDER TOWER AT

£799 (from) • 0604 766572 • 80286 CPU • 512K • EGA • 1 serial port • 1 parallel port • 5 expansion slots • 20Mb hard drive bundled software

The exact opposite of Schneider's other computer the Euro PC, the Tower AT is aimed at the power user with money to burn. The machine, however, offers reasonable specifications at a very moderate price and as such deserves your attention.

Power: 50
Desirability: 45

VALUE FOR MONEY: ★★★

● TANDON PCX20

£1045 • 0572 46800 • 80C88 CPU • 640K RAM • CGA • 1 parallel port • 1 serial port • 5 expansion slots • 20Mb hard drive

Tandon is a computer manufacturer responsible for a large range of PC and AT compatibles. The PCX 20 is an entry level computer which is robust and fully featured - worthy of close examination for those looking for a first PC.

Power: 47
Desirability: 50

VALUE FOR MONEY: ★★★

● TANDON PAC286 1.2 PLUS

£1688 • 0572 46800 • 80286 CPU • 1 Mb RAM DISPLAY 1 parallel port • 1 serial port • 3 expansion slots • 20 Mb hard drive • 1.2Mb floppy

Mid-range 286-based AT compatible from Tandon featuring a high density floppy drive as standard. It is a little expensive.

Power: 65
Desirability: 55

VALUE FOR MONEY: ★★

● TANDON 382/20 110

£3399 • 0572 46800 • 80386 CPU • 1 Mb RAM • VGA • 1 parallel port • 1 serial port • 5 expansion slots • 110 Mb hard drive • Microsoft windows

Top of range Tandon 386 featuring large capacity 110 megabyte hard drive, robust construction and reliability. This machine has everything you could ask of a PC compatible machine and has a price to match.

Power: 79
Desirability: 65

VALUE FOR MONEY: ★★★

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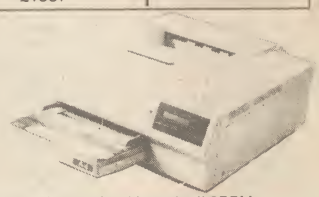

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● TANDY 1000SL

£695 (from) • 0922 710000 • 8086 CPU • 384K RAM • CGA • 1 parallel port • 1 serial port • 5 expansion slots • 20Mb hard drive

Tandy (AKA Radio Shack in the States) is a company with a large amount of experience in the electronics industry. Tandy has numerous outlets around the country and the person-power to cope with warranty repairs etc. Consequently Tandy PC compatibles are a suprisingly good buy if a little expensive. The 1000SL is an unusual looking entry level computer which suffers from a small RAM to large price ratio.

Power: 44
Desirability: 20

VALUE FOR MONEY: ★★★

● TANDY 5000MC

£4995 • 0922 710000 • 80386 CPU • 2Mb RAM • EGA • 1 parallel port • 1 serial port • 10 expansion slots • 40Mb hard drive • bundled software

Fully-featured 386 computer from Tandy. A high quality of construction and plenty of expansion possibilities ensure the 5000MC a rosy future.

Power: 99
Desirability: 75

VALUE FOR MONEY: ★★

● VICTOR VPC11C

£1099 (from) • 0494 461600 • 8086 CPU • 640K RAM • CGA • 1 parallel port • 1 serial port • 3 expansion slots • 30-60Mb hard-drive

No frills PC compatible from relative new-comer Victor. The machine is well made, has a super keyboard and crisp display. A little expensive at £1100.

Power: 48
Desirability: 35

VALUE FOR MONEY: ★★★

● VICTOR V286S

£2499 • 0494 461600 • 80286 CPU • 1Mb hard drive • CGA • 1 parallel port • 1 serial port • 8 expansion slots • 40-130Mb hard drive

The V286S is the mid-range machine of the six machines currently marketed by Victor. This machine is rather expensive, but of stout and reliable construction.

Power: 70
Desirability: 60

VALUE FOR MONEY: ★★

● VICTOR V386S

£3999 • 0494 461600 • 80386 CPU • 2Mb RAM • 1 parallel port • 1 serial port • 8 expansion slots • 130Mb hard drive

Top of range 386-based computer from Victor. Expensive.

Power: 95
Desirability: 70

VALUE FOR MONEY: ★★★★

● VIGLEN VIG1

£789 • 01 843 9903 • V20 CPU • 640K RAM • CGA • 1 parallel port • 1 serial port • 5 expansion slots • 30Mb hard drive

The VIG 1 is an imaginatively titled entry-level computer from Viglen. Fully-featured and cheap, the machine deserves a second look.

Power: 57

Desirability: 50

VALUE FOR MONEY: ★★

● VIGLEN VIG1 PLUS

£1189 • 01 843 9903 • 80286 CPU • 640K RAM • VGA • 1 parallel port • 1 serial port • 5 expansion slots • 30Mb hard drive

Mid-range 286 machine from Viglen labouring under the unfortunate name of VIG1 (sounds rather like a Gerry and Sylvia Anderson creation) which nonetheless is an excellent and cheap computer worthy of your attention.

Power: 77

Desirability: 70

VALUE FOR MONEY: ★★

● ZENITH EASY PC

£499 • 06286 68588 • V40 CPU • 512K RAM • CGA • 1 parallel port • 1 serial port • no expansion slots • 3.5 floppy

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Power: 29
Desirability: 5

VALUE FOR MONEY: no stars.

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Amstrad 9512 Fbr Colours: Red, Blue, Green, Brown	F	4.30	7.78	17.35
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4 x 1 15/16	12.78	28.09	51.26
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Brother HR15/25/40	*2696	B
Canon PW1080A	2223	D
Centronics GLP	2412	D
Citizen 120D/180E/LSP10	2488	B
Citizen MSP-40/50	2477	D
Commodore MPS801	2236	D
Epson FX/LX-80	2273	B
Epson LX/GX-80	2454	B
Epson LQ-500	2477	D
Epson RX-80	2273	B
Epson EX-800	2774	D
Epson Full Width	2320	D
Juki 6100 Daisywheel M/S	2563	B
NEC Pinwriter P1/P2	2254	D
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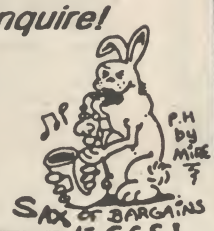

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WANTED 64 Tape Computing March 1985 issue which included a game called League Soccer. If you have a copy please ring 0634 578958 after 6.30pm ask for Neil.

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AMIGA contacts: swap, buy Amiga books, swap hints and tips on m/c and C. 100% reply. Tim, 20 Cliffe Vale Place, Stoke-on-Trent, ST4 7AN.

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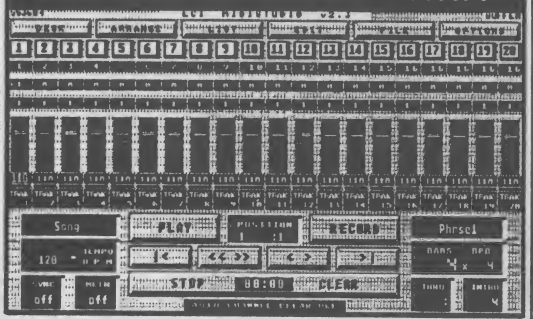

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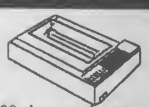

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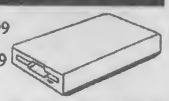

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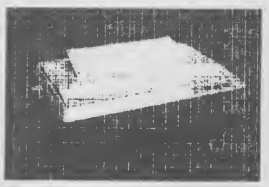

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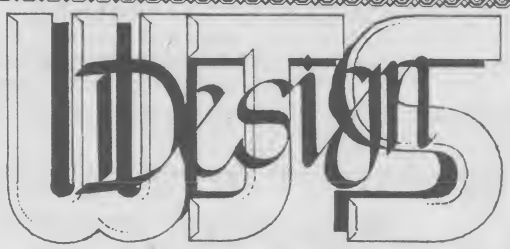

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ARM WRESTLING

PRL has been controlling industrial robots for years. Now it's turned its attention to the ST. Mark Higham finds out what fun you can have with a Robokit cartridge and handfuls of Lego

ROBOKIT
ST • £99 • Silica Shop • 01-309 1111

Robokit was first announced 18 months ago. Six months later the first prototypes were put on show but since then we've not heard a squeek – until now.

Robokit in itself is not a robot – it's just cartridge that plugs into the ST, providing a user port similar to that found on the BBC micro. You can connect various devices and detectors to this cartridge and then use software to control them. You'll need about three brains to create a robot with no brains but that's is where the fun starts.

Construction worker

The manual supplied with the cartridge gives five models to build and explanations of these stretch across 40 pages. You can assemble a mini-arm, plotter, card reader, maxi-arm and a lift-operator.

Besides details on how to construct the models, there is also a lot of information on wiring the motors and sensors to the Robokit interface and here the manual really comes into its own. Detailed explanations are provided on everything you need to know to link the robot to your ST.

Once you've constructed the robot, the first thing you should do is load the software and import a backdrop. This will be an image of the robot you're using. These serve no useful purpose except illustrating the way the robot should move once you add motion icons.

The five robots in the manual have their own backdrops but they can only be seen at their best on a high-resolution monitor. If you try and view them in other modes you only see half an image. A scaling routine has been added to the backdrop designer so you can rescale any models you draw yourself but those provided cannot be rescaled. If you create your own robot you'll need to design the backdrop from scratch. This can be done using Degas *Elite*, *Neochrome* or *GEM Paint* and then importing the file into the backdrop designer. Here, all colour is stripped from the image and it's stored as a black model against a white backdrop.

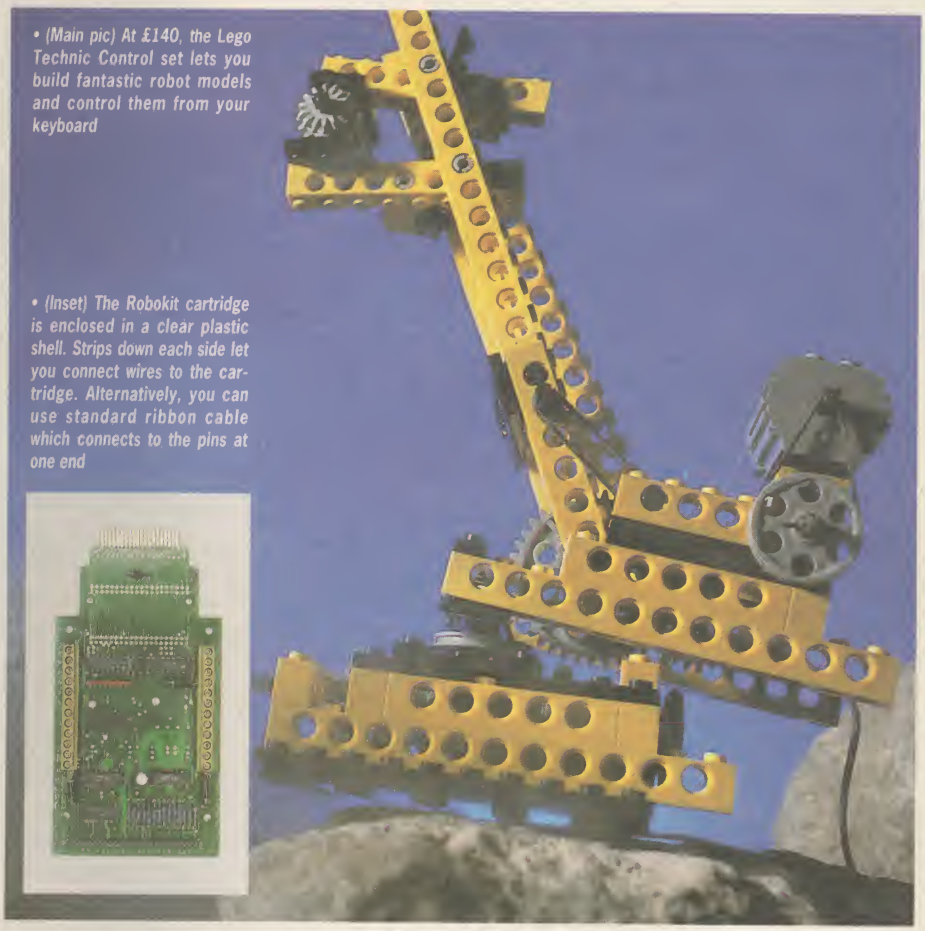
Captain's log

To actually start seeing some movement, the first step is to position a variety of icons over the backdrop. Hands, arrows and other essentials such as a light bulbs and speakers are provided as icons. These should be positioned wherever movement is likely to occur. For example, you would place up and down arrowed icons next to the lift operator. None of these icons mean anything until you assign control power to them and then they can be given any meaning you want. There are 20 icons which cover most situations but since you can't create your own they can occasionally seem limiting.

Adding commands to the icons is where the fun starts. You can set them up so that they'll initialise a motor, make motors rotate or stop movement altogether. You can control eight motors or other switched output devices such as LEDs. Eight buffered inputs are provided and two of these have special circuitry allowing you to interface Lego to 'Encoders'.

One of the most useful sides to Robokit is the ability to access the board from your own software. Several examples of how you can do this are provided using both C and Basic code. This means Robokit doesn't necessarily need to be used to design robots, but can monitor burglar sensors or activate lighting or other devices.

To assign a control function you must allocate a motor number and an output port to the icon. Now, by double-clicking on icons, the robot will burst into life – hopefully. With the more complex robots like the card reader, the manual lists possible problems which can arise.



• (Main pic) At £140, the Lego Technic Control set lets you build fantastic robot models and control them from your keyboard

• (Inset) The Robokit cartridge is enclosed in a clear plastic shell. Strips down each side let you connect wires to the cartridge. Alternatively, you can use standard ribbon cable which connects to the pins at one end

Looking for fun

Input watching is one nifty feature. This enables Robokit to watch for certain events and respond when they become true. For example, with the mini-arm, micro-switches are installed so that as the robot rotates it tells you exactly where it's located. The system can be programmed to watch for this event every five seconds in parallel with anything else. Once you've programmed the software to watch the robot it will continue to do so until instructed otherwise. You can program a reply to this function so the robot responds when the situation becomes true.

The educational possibilities with something like Robokit are enormous. It can teach children the logic principles behind robotics even though it can't perform any worthwhile task itself. However, what's important is its versatility. Controlling Lego is never going to be a major achievement but there's no reason why extra relays can't be attached so that any situation can be watched and actions taken. Robokit lets your ST communicate with the outside world and there's no end to the possibilities with something like this.●

THE FAMOUS FIVE

The five projects which come with Robokit are far from easy but they do an excellent job of illustrating the basic techniques behind everyday objects. The mini-arm is one of the easiest models to build. One motor revolves the arm on its base while the second operates the gripper. Two home-made microswitches detect the position of the mini-arm.

Microswitches are exploited even further with the lift operator. Here, one motor is used to control a moving platform which stops at seven 'floors'.

The card reader is an interesting one. Here, you can build a robot to read a card with punched holes in it. Depending on the position of the holes, the card reader gives out different values, detected by the software.

There's even a crude drum plotter tossed in as well. This model rotates a drum backwards and forwards and a pen is moved on and off the paper surface to make a drawing.

Finally, there's the maxi-arm. Three motors provide versatile movement around two axes and operate a gripper. This is steady enough to move the pieces on a chess board, provided they're not too large Chess software is extra.

TECH TIPS

Personal computer problems? Express's Agony column has the answer. Write in strictest confidence to Uncle Techtip. The best tips win a freebie – so don't forget to tell us your address and machine

HELP! Express address

I would like to know the address of Computer Express in Manchester. If you can give this to me, I will be getting an Amiga. And also, can you tell me why they stopped advertising in your magazine, because every time I buy *New Computer Express* I look for their advert, but they not there.
Lee Steven Derring, Macclesfield, Cheshire.

Contact Computer Express at 85 Washway Road, Sale, Manchester M33 1TQ. Tel: 061 962 0780. Tel you why the company stopped advertising? No.

HELP! Doctor dilemma

I use an Atari 1Mb ST computer and have a Triangle dual 3.5/5.25-inch second drive connected to it. With this set-up I've tried to use a copy of *PC Ditto*, which I wanted to use to read IBM programs. I have only recently realised that a copy of MS-DOS is needed in order to make it work, as this is not generally spoken about when *PC Ditto* is written about in various magazines.

So, in my ignorance, I saw advertised DR-DOS and after reading that it is better than MS-DOS 4.0, I bought it on the understanding that if I were not satisfied, I could return it within 30 days of purchase and have my money returned.

I followed all the instructions as per *PC Ditto* and the first drive B: and tried to load DR-DOS. The 5.25 inch disk rotated through probably the first sector and then refused to rotate any further! In other words, it refused to load.

I have asked user groups, Triangle and also Digital Research who's responsible for DR-DOS, also the *PC Ditto* help line and I cannot find any answers. Please could you help or find somebody who can?

I must find an answer before my time is up so to speak, or I would have wasted my money.
J. C. Ingate, Bexleyheath, Kent.

So you saw DR-DOS advertised with the guarantee that you could return it within 30 days if not satisfied? Why don't you return it from whence it came? DR-DOS is Digital Research's enhanced version of MS-DOS, but it is not fully compatible with MicroSoft's original, having some problems with networks and so on. I think it's unlikely that you'll get it to work with PC Ditto, which needs true MS-DOS to run.

TIP Fingering disks

I recently came across a floppy disk problem on my Amstrad 1640 even with disks formatted on other machines, and although I'm not sure what causes it I've found a simple solution.

It's an odd problem. You can be using a floppy or put it in another machine when it goes 'off' and you get disk messages such as bad sector, FAT error etc., and neither *PC Tools* or the Nortor. Utilities can make anything of it. Giving sector not found or similar messages and suggesting that the disk is faulty.

The solution is easy. All you do is to (very carefully) hold the floppy by a corner so as to squeeze the magnetic media. Insert two fingers of the other hand carefully into the hub ring and separate them to grip the disk hub. Rotate the disk slightly, put it back into the drive and get a directory listing (type DIR). If this doesn't work, try it again, but it worked first time for me on both occasions when I experienced the problem.

Once cured, it doesn't appear to happen again - a quick quarter or half turn seems to fix it without any problems.

By the way, does anyone know where I can get a decent COBOL language for my PC? I've written to several PD libraries with no joy except for Utah COBOL at £40 and Microsoft at £500 which I can't afford. I'm doing an HNC at evening classes and need to practise at home.
G. W. P. Mason, Bainsford, Falkirk.

Strange but true, disk turning with the fingers does seem to cure many ills. Buy the Utah COBOL it's a comprehensive implementation of the language at - in PC terms - a reasonable price.

HELP! TV teach-in

Evesham Micros sell a TV/monitor for £269 (model number 2325). It would serve all my needs as I have a young family and a second TV would be great. The question is, how good is the monitor side of it? Your remarks would be appreciated.
C. D. Thompson, Prenton, Birkenhead.

The monitor is a reasonably priced, well specified device that will work fine with your Atari ST and will keep crying kids happy by becoming a TV when necessary. Evesham is a good company with a solid reputation. Buy the monitor and enjoy it. (Was that OK, Mr. Evesham?)

HELP! Citizen Thornton

I am considering purchasing the Citizen 120D printer and the *Kind Words* package for my Amiga and would be pleased if you could answer the following questions. Please don't laugh, I'm a newcomer *(Uncle Techtip laugh at a poor unfortunate novice? As if I would - Uncle TT).*

1. Would I use the Epson FX-80 driver for the Citizen? If not, which driver should I use?

2. What other printer settings in would I need to change?

3. How would *Kind Words* support my Citizen?

4. Can I plug the printer straight in or do I need more leads?

5. Which port does the printer use?
Craig Thornton, Nettleham, Lincoln.

1. Yes. The Citizen is an Epson compatible printer which will work quite happily with an FX-80 driver. Almost all of the popular word processing and graphics packages support Epson printer control codes, so you shouldn't experience any problems.
2. None (hopefully). Just fire up your software with the Epson driver selected and you're rocking.
3. See 1. and 2. above.
4. You'll need to obtain a standard parallel Centronics printer lead to attach the printer to the computer. These are avail-

TIP WAITing around

Replying to the letter from P. R. Holland in *Express* 49, he can get his PCW to pause between commands in a submit file. Sub files can nested under CP/M Plus, so if he creates several sub files (JOB1.SUB, JOB2.SUB etc) he can use them all in a master sub file.

To pause between job*.sub files, he needs a simple pause program. Transfer MAC.COM and HEXCOM.COM onto a working disk and use a text editor (or *LocoScript*, saving the file as an ASCII file) to type in the listing below.

Save it as WAIT.ASM. Then from the CP/M A> prompt type MAC WAIT!HEXCOM WAIT, and lo and behold he should have a program on his disk called WAIT.COM. All that needs to be done now is a suitable MASTER.SUB file. This can be achieved easily:

```
submit job1
wait
submit job2
wait [and so on...]
```

Dick Greener, Leyton, London.

```
;WAIT.ASM
start
org   100h
mvi   c,9h
lxi   d,message$
call 005h
mvi   c,1
call 005h
ret
message$
db    1bh,41h,'Press a key after you
have changed the disks$'
end
```

• The listing to pause between sub files on a PCW

able from every computer supplier in the known Universe and cost about £12. Although I could recommend one of the advertisers from *Express*, it'd be a whole lot quicker if you simply popped along to your local computer store and bought one.

5. The Citizen 120D uses the parallel printer port built in as standard to your computer. If you have difficulties locating the port, consult the manual (but don't worry, the cable won't fit any other socket).

TIP Superbase slip-ups

Your bug of the week in Express issue 50 concerning Superbase Professiional's DML language being bugged to hell is inaccurate and alarmist. I have no connection with the makers of Superbase but use it 24 hours a day in my business. I cannot allow Mr McCall's letter to go unchallenged.

Selecting Superbase info does indeed produce the busy bee symbol but the way round is to press CTRL-C or select the stop icon and then you can continue with no problems.

The five menus problem has been resolved in the latest version. I make extensive use of this program and have found the whole package to be excellent, and the minor bugs that do exist can be programed around.

There is a problem with Superbase which I find annoying which relates to the use of relational forms such as invoices which have multiple fields. If you create a new record, save it then get called away to answer the telephone or something, when you return, if you can't remember whether you saved or not and save again the document will be saved twice - there are no warning boxes. So for example an invoice for widget 1 at £12 and widget 2 at £11.75 total £23.75 becomes four items, 2 of each widget at a total of £47.50, which of course is a serious problem. There are ways around this too but none of them are simple or 100% effective. Fortunately, this problem only occurs when a record is first created and not with an edit of a previously saved record.

Richard Choroszewski, London SW12

HELP! Beebulator

I am considering buying an Amiga A500 because of the wide variety of uses it seems to be able to fulfill and because of the new LOGO which Commodore have produced. However, I have been using a BBC previously and have a large amount of software. Is there any way in which I can use these on the Amiga? What will the BBC emulator available for the Amiga let me do?

Geoff J. Thurnhill, Kidderminster, Worcester.

The BBC emulator will allow you to run well-behaved programs written in BBC BASIC on your Commodore Amiga. This means that you will have access to a large range of educational software. what you *won't* be able to do is to run games, and 'business' software written in machine code. So all those games such as *Elite* that you just couldn't face life without will have to be purchased anew in the Commodore format.●

TIP Aboard the Arc

Here are some assorted tips for users of the Acorn Archimedes range (including the new A3000).

First, some screen scrolling tips. When reading long text files such as the readme files provided on some applications disks, there are several ways to stop the text flashing past your eyes too fast (this also holds true for long BASIC listings) these are:

1. Scroll lock. When the light on the scroll lock key is on, this prevents the screen from scrolling upwards. Scroll lock is a toggle key, so to turn it on you press it once and to turn it off, press it again. The only disadvantage with scroll lock is that you have to be pretty quick turning it on and off, otherwise text will disappear off the top of the screen before you can read it.

2. Ctrl. Holding down the [ctrl] key will slow the scrolling down considerably, and although it's still a little too fast to read it all, at least text can be scanned for particular words/headings.

3. Ctrl and shift. If the [shift] key is pressed with the [ctrl] key, scrolling is frozen until either key is released. It is a good idea to use [ctrl] and [ctrl]/[shift] together, i.e. holding down [ctrl] with one finger all the time while reading the text file and tapping [shift] when necessary.

4. Paged mode. This is activated by pressing [ctrl] and N, and turned off with [ctrl] and O. When paged mode is activated, scrolling is halted after every screenful. To move to the next screenful, tap the [shift] key quickly. If you hold it down too long, then too much will go by.

My next set of tips concerns the use of windows. You probably know that by using the `!configure` program supplied on one of the RISC OS applications disks you can alter the window's configuration so that they are either updated in real time on the screen when you move the, resize them etc., or so that the new position is shown by a dotted line until you release the mouse button, as on other WIMP environment systems such as the Apple Mac. What isn't such common knowledge is that the windows configuration can be altered without going through `!configure`. Here's how. Look at the list below, which shows the various options:

Continuous window movement (1)
Continuous window resizing (2)
Continuous horizontal scroll (4)
Continuous vertical scroll (8)
Error box beep off (16)

Choose your required options from the above list, then add up the numbers in brackets for the options you have chosen e.g. continuous window movement, resizing, horizontal and vertical scroll is 1+2+4+8=15. Make sure you're in BASIC (or if you are in desktop, press F12 to open a shell CLI) and type `*configure wimpflags n`, where n is the number you obtained by adding together the option numbers. Hope these tips save many hours searching through reference manuals.

Joel Grounds, Llanfairfechan, Wales

• Tips to make life easier on an Arc

HELP! Cartoon capers

Some sound advice would be welcome. At present I earn a meagre living producing drawings on an Amiga 2000 and CAD package. However my qualifications include art and I am thinking of setting up by myself. I already have some contacts for whom I produce advertisements, leaflets etc., and I hope that a computer and some suitable software will enable me to produce faster, more professional results. So here are some questions.

1. Is there enough RAM on a standard Amiga 500 to produce fairly complex graphic and text outputs?

2. Which DTP/graphics software would be best suited?

3. Would the absence of a hard disk be a real problem? Could a second disk drive suffice?

4. Am I overestimating the Amiga A500? (I cannot afford the A2000).

Steve Merrigan, Ellesmere Park, Eccles.

1. Yes. Although as a general rule the more RAM you have at your disposal then the easier will be your computing endeavours *(Gosh! Sounded almost serious that time kids - Uncle TT)*, the 512K of RAM contained within the silicon coffers of Commodore's baby is quite enough for the purposes you have in mind.

2. The Commodore Amiga, probably more than any other 'home' micro on the market, has an enormous quantity of quality graphic software available at a range of prices and with varying features. One of the better packages is *Photon Paint II* from Electronic Arts (0753 46465). Its splendid graphic-ish features mean that anything you want to do can be easily achieved using this program.

3. Hard disks are jolly useful devices which - along with mountains of RAM - make computing just that little bit easier. However, you can manage without one and the simple (and cheap addition) of a second floppy will go a long way towards easing the pain of being hard drive-less. Evesham Micros sell an excellent second floppy drive for around £75 (I say around because they're continually lowering their prices). Contact Evesham on 0386 765500.

4. No. The Commodore Amiga is a powerful, quality machine which with its specialised graphics hardware, is ideal for the likes of you (artists and designers, that is). Buy an A500.

And thanks for the cartoon you sent in (below). I nearly laughed.

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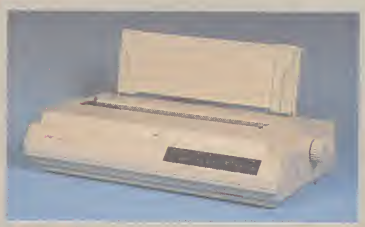

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TIGER on the loose

Big US music software company Dr T has released two new packages that aim to improve on the old standards. *TIGER* is an interactive graphic editor designed to work with Dr T's *KCS* or Keyboard Controlled Sequencer or other MIDI file standard compatible sequencers. Notes are represented on-screen in a 3D format with pitch, duration and velocity shown as vertical and horizontal bars and a vertical stem respectively. *TIGER* is £129, but look out early next year for *Tigercub*, a cut-down version.

X-OR is a GEM-based patch editing program that can accommodate profiles for most synths, so that once you've set it up you can load an entire bank of sounds for each of your synths with a single mouse-click. *X-OR* costs £249, and both it and *TIGER* are distributed in the UK by MCMXCIX, who are on 01 724 4104. For a full review of both these music packages (and so much more) see the December issue of *ST Format*, out on Thursday 16 November.

Atari users live longer

Did you know that, according to a test conducted in West Germany of 17 monitors, Atari's black and white SM124 emits the smallest electromagnetic field of any of them?

An OASIS celebrates

The Organisation Against Sexism in Software celebrates its first birthday this month. The group, founded by Sandra Vogel to fight sexist stereotyping and exploitation in the computer industry, publishes six newsletters a year and issues lists of "recommended software." This is an admirable goal, though I doubt that the computer software world is any worse than many others. And I'm a little uncomfortable with the idea of recommending software if it's on the basis that because it's free of sexism it's got to be The Right Answer and A Good Thing.

Membership costs a very reasonable £3 a year, and you can find out more by writing to Sandra Vogel, OASIS, 3 Alden Court, Stanley Rd, Wimbledon, London SW19 8RD.

Steve Carey

LAST GREAT ADVENTURE?

It seems that the once hermetically sealed world of "adventures" is steadily letting in fresh air. I mention this because there's recently been a whole spate of games that have incorporated aspects of the old once-boring adventuring games – role playing, exploration of alien worlds, cultures and times, puzzling and so on – yet which take advantage of the ST's graphics and speed to offer something far in advance of those dreadful text-based yarns of yesteryear.

Drakkhen, for example, from Infogrames – whose last adventure, if memory serves, was the so-so Quest for the Time Bird – looks beautiful (hardly the preserve of adventurers hitherto) and offers a bewildering choice of locations to explore. Its basic premise – some nonsense about killing green dragons – is really too yawn-inducing to be worth your time. Yet the monsters you encounter on your way, the four islands you must travel and the role-playing aspects of the game make it all in all one of the most engrossing pair of disks I've loaded in a long time: £25 and worth every penny.

Electronic Arts' Hound of Shadow is another marvellously convincing evocation of a world. You're off on the mysterious track of something rather nasty – once again the fun is rather more in the exploration than the scenario itself. Add to this titles such as Rainbow Arts' Day of the Pharaoh and Hewson's quite extraordinary Onslaught and you begin to wonder whether it makes any sense to talk about action and adventure games as if they were two different things.

In fact, I doubt that the term "adventure" has meaning any longer. I therefore declare the adventure dead: long live action-adventures!

PS If you wish to counter the assertion that "the adventure is dead," write to: Long Live Adventures, Steve Carey, NCE, 4 Queen St, Bath BA1 1EJ.

• Two shots of EA's brilliant Hound of Shadow. Is this the death of the adventure as we know it?

MSX TRA

Another mouse is loose

AbbeySoft of Spalding has available a two button MSX mouse, manufactured to a high standard in IBM coloured plastic, and actually made in Taiwan. The MSX mouse is an ideal replacement device, but it is also supplied with a short-listing to type in, thus giving the purchaser scope for experimentation. Priced at £29.95, the mouse can be purchased from Abbey Soft, Abbey Passage, Spalding, Lincs. Tel 0775 711714.

More news is good news

The NCL software library has MSX titles available for hire, at reasonable rates. And an increase in library membership would speed up an updating of the MSX section, so the more the merrier. The NCL will also be producing a Bi-monthly news letter to which subscribers might very well be able to contribute. The annual subscription fee is £5.00 per year, and for more information on either activity, send a Stamped Addressed Envelope to NCL, PO Box 34, Wantage, Oxon, OX12 7QP.

On the road

One show of interest to the eight-bit MSX user will be held in Tamworth, on the 26th November. Although the show is for a wide range of eight-bit computers, MSX devotees will not be surprised to learn that the organiser, Adrian Betts, is an MSX owner. If you would like to know more details about the show, send a stamped addressed envelope to Adrian at 8 Healey, Lakeside, Tamworth, Staffs B77 2RF.

Sailing away

Does Ocean plan to release *New Zealand Story* on the MSX format? As far as I know, this title *will* be converted in the near future, but a release date has yet to be finalised. We wait with anticipation.

Games

Nightdare of Chelston, Torquay, 0803 60614, now have the MSX 2 games *Contra* and *King Kong 2* in stock, priced at £26 and £22 respectively. I am also informed that they are always trying to obtain more software on Rom from Japan, so keep watching this space for news of games to come, and possibly good news on the hardware front. Both *Contra* and *King Kong 2* are games well worth a look – see this column in issues *passim*.

Keith Neal

TINY TALK

A little mouse at AbbeySoft also tells me that sales of MSX software far and away exceed expectations, outstripping all bar Spectrum, while at the same time equalling sales of Commodore 64. Mousy says: not bad for a dead format.

SECTOR 64 SECTOR

Don't give up the ghost

Level 9's latest text/graphics game adventure, *Scapegoat* has been released at a cost of £14.95 on tape or disk. You play the part of Alan Chance, killed while investigating a drug smuggling ring, and as a ghost, you have three nights to bring the gang to justice. But there are some very tricky puzzles, and watch out for bright lights and the wonderful ghost of Joe Danby!

A fanzine at bedtime

If you're in the mood, you could write off for a couple of computer fanzines. 'Adventure Probe' has been going for donkey's years, with Mandy Rodrigues as the editor: she lives at 67 Lloyd Street, Llandudno, Gwynedd LL30 2YP. People who already know this fanzine please note that this is a new address as of 1st October. 'Adventure Probe' costs £1.50 an issue, and it is full of hints and tips for solving adventures, reviews of new games, readers' letters, how to write adventures, etcetera. Then there's 'Spellbreaker', a babe in arms at eight months old. Again at £1.50 (new price from October issue), 'Spellbreaker' hails from Mike Brailsford, who lives at 19 Napier Place, Glenrothes, Fife KY6 1DX. 'Spellbreaker' is more into maps and full solutions, getting you started and finished, new releases news, with plenty of general and sometimes specific 64 information.

What's in a name

After reading last week's column you may be thinking "how did he manage to read the original telex about the VIC 20?" As an ex-Commodore employee, I shall tell you. The faithful Debbie was the telephonist then, and I was talking to her when the fateful telex came through. I was also attempting to keep out of the way of our Managing Director, one Kit Spencer. You see, we'd just printed thousands of leaflets about the VIC 20, in full colour, which was expensive. I'd read through all the wording prior to printing, and it seemed okay to me. When they were delivered the huge headline on the front page had got one letter M too many in the word "TOMORROW". The MD was mad...

Pete Gerrard

ON LOCATION

Some people moan that 64 BASIC doesn't have a LOCATE command, as in LOCATE X,Y:PRINT "I'M HERE". This really is no problem. At the start of your programs, define two string variables thus: FOR I=0 TO 39: CR$=CR$+CHR$(29):NEXT:FORI=0 TO 24:CD$=CD$+CHR$(17):NEXT. Then, you could use X=25:Y=12:GOSUB 500:PRINT "I'M HERE", where line 500 reads 500 PRINT LEFT$(CD$,Y);LEFT$(CR$,X);:RETURN. The solution, once you know it, is nothing short of easy, Peasy.

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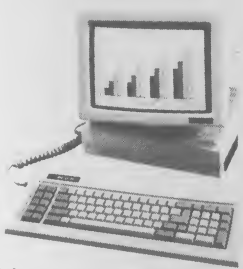

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SPEX

Holiday race-away

Boy and girl racers who want a driving game to keep them sane over Chrimbo have got a huge selection to choose from with many software houses desperately hoping for an *Outrun*-like success to maintain solvency. Here's a rundown of the more promising, turbo charged, twin cam, furry dice jiggling driving games that should be out for the Speccy before the twenty-fifth day of December, if not sooner.

Hard driving - Domark

This gobbled coins in the arcade on account of its realism. The Speccy version is fitted out with filled 3D graphics and looks as similar to the original as it could on our machine. The speed of the demo version shown at the recent PC show was a little less impressive but it still demands a place in your affections.

Power Drift - Activision

Another seemingly impossible conversion from a state of the art arcade cabinet. Again, latest demos suggest a worthy conversion with the undulating raised tracks of the original successfully incorporated.

Chase HQ - Ocean

Definitely the one I'd like most from Santa, this game goes for the car chase theme with you putting pedal to metal in the cause of Justice. The idea is to catch up with the baddie and then persuade him to pull over by ramming his plush sports car. With Ocean's faultless Spectrum programming of late, my hopes are stratospheric.

Happy get together

The International Computer Society is a non-profit making club with a very humanitarian and worthwhile aim - "to bring people together to help them build friendships, and through this an understanding of each other." Makes you feel warm inside doesn't it? The organisation runs a pen friend service and the society founder, George St Clair-Gunn, hopes to provide computer related special offers and possibly a magazine. Mainly though, it furnishes the opportunity to establish contact with like-minded individuals. This society opens its doors to anybody (non-Spectrum owners included) for a covering charge of £2. Join by sending that amount to 18 Bentick Street, Belfast, BT15 1 LZ, Northern Ireland - or forward a SAE for further details.

Better notes

Last issue I conveyed the heart-rending story of one man and his +3's sound fault. That man was Ted Kirk, and luckily he also owns a fully functional +2, which meant he was able to program an excellent piece of educational music software called *Play What I Play*. this is a fairly simple package which provides aural pitch practice for musicians up to Grade 5 standard. It's available for all incarnations of the Speccy on tape, microdrive and +3 disc; I recommend that all novice musicians send the obligatory SAE for more details: Ted Kirk, 33 Humber Crescent, Sutton Leach, St Helens, Merseyside, WA9 4HD. I hope this copy falls into the hands of someone who can make use of it. (Does anyone know Kylie's address?)

End notes

Mucho apologies all around for printing the wrong address of Capri Marketing a few months back.

I'm reliable informed they reside at The Computer Cavern, 9 Dean Street, Morlow, Buckinghamshire, S17 3AA. This is the address you should send SAEs to if you want details of their excelent range of Wafadrive products.

Robin Alway

MR GENEROUS

Vincent Haworth of Manchester gets my nomination for the Mr Generous of 1989 award by heaving a huge collection of Multiface pokes through my letter box. They span a large selection of games and should allow you to finish any titles you didn't have sufficient quantities of time or skill to complete first time around.

GAME	POKE	EFFECT			
Arkanoid 2	40420,X	X = speed	Part 4	37824,0	Lives
Barbarian 2	40519,0	Energy	Part 5a	37818,0	Lives
Dan Dare	23974,168	Energy	Part 5b	37979,0	Lives
Dan Dare 2	23450,212	Lives	Flying Shark		
Dragon Ninja	38918,0	Lives		54462,201	
Double Dragon				54379,3	Bombs
Part 1	37693,0	Lives	G&G	33352,201	Lives
Part 2	37815,0	Lives	G'n Beret	42076,0	Lives
Part 3a	37813,0	Lives	Garfield	33595,0	No hunger
Part 3b	37794,0	Lives	H.A.T.E.	53246,14	Lives

As well as another helping of eternal gratitude, Vincent will also be getting a free piece of Spectrum software.

AMIGA BLITZ

Amigas at the movies

Spotting an Amiga on the television is pretty tame stuff these days, what with programmes such as 'Ghost Train', 'Miami Vice' and 'The Chart Show' featuring the Amiga heavily. Playing 'Spot The Amiga', however, isn't as easy when you look towards the silver screen.

One film to look out for is 'The Rachel Papers' that not only includes an Amiga, but much of the plot is built around the machine. The teenage hero of the film, Charles, uses his Amiga 500 to help him win over the girl of his dreams, a young American named Rachel. Using a combination of various pieces of software, Charles builds up a database on Rachel, and uses it to eventually get his girl. The film should be on general release soon.

Join the QL

The number we gave for the QL emulator from UGA Software in Holland was wrong – apologies to the lady in Utrecht. The emulator is available for £3 from Softville, Unit 5, Stratfield Park, Electra Avenue, Waterlooville, Hants. PO7 7XN.

Naughty but nice

AmigaBASIC programmers hoping to use special keys within their programs will have no doubt already found that the AmigaBASIC INKEY$ function won't do the job. The way around this problem is to bypass AmigaBASIC altogether and use the hardware registers instead.

The particular hardware register we are interested in is the CIAA serial data register that looks after keyboard input (located at Hex $BFEC01). To read any key depression, all you would do is to use the following AmigaBASIC program line - A = PEEKW(&H00BFEC001). Reading the variable 'A' will return the keycode for the key that was depressed when the line was executed. Here's a quick list of the keycodes for some of the more commonly used keys.

Value	Key Equivalent
63	Left Shift
61	Right Shift
117	Escape
57	Control
59	Caps On
58	Caps Off
65	Help

It is worth noting that this register actually reads two values when a key is depressed. The first is produced when a key is depressed, and when the key is released, a second value is produced. This can be quite handy when using special keys within games software. Anyway, experimentation is always the best bet to get the most from anything.

Amiga music update

Users of Intelligent Music's *M* algorithmic composer will be pleased to hear that the company has produced an update, in the shape of *M* version 1.1.

In addition to fixing several bugs in the original, the new version also includes enhancements to build further upon an already powerful composition system. *M* version 1.1 includes continuous time base denominator values from 1 to 48, the ability to preview synth timbres using a keyboard short-cut and several enhancements to the user interface to make *M* much easier to use. *M* version 1.1 is available from the UK distributors, MCMXCIX on 01 258 3454.

Look out for a flood of new releases from the American music company, Dr.T. Among the new products soon to be released is *X-OR*, a system exclusive data manager, *Tiger, KCS 1.7* and several new patch editors, including an editor for the newly released Emu Proteus module. Once again, Dr.T software is available from MCMXCIX on 01 258 3454.

Details are finally starting to emerge concerning the Amiga version of Steinberg's acclaimed *Pro-24* MIDI sequencer system, now renamed (in typical Steinberg fashion) Amiga 2400. Below is a run down of 2400's features.

24 Available Tracks – Not quite up to *Music-X*'s 250 tracks, but many professionals have been getting along with *Pro-24* rather nicely thankyou.

8 Record SubTracks - *24* can record upto eight instruments simultaneously.

384 ppqn Resolution – Undoubtedly the highest resolution offered by any Amiga sequencer. This is much improved over the ST version that only offered 96 ppqn resolution.

Grid/Key Editor – Provides quick and easy editing of any sequence using a Music X-like bar editor.

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Powerful Remix options – Possible remix of last 127 recorded versions.

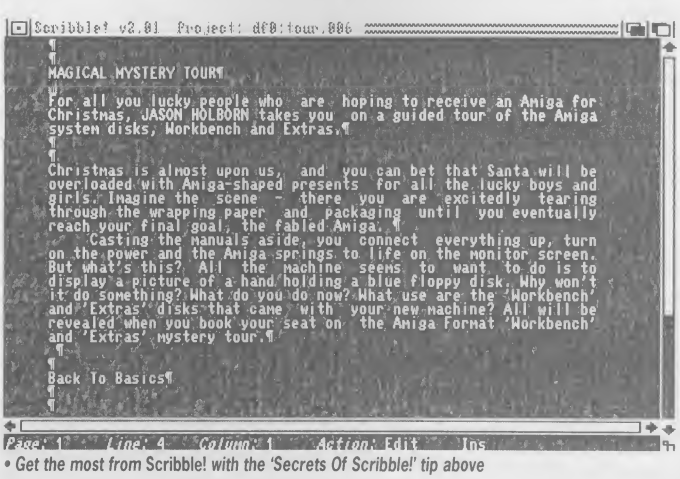
Secrets of Scribble!

There are two subjects that provoke the most confusion amongst Amiga owners – connecting a printer and once that is done, getting the damned thing to actually work. Of course, matters are made worse when the producers of word processors print incorrect information in their manuals.

Those *Scribble!* users among you who have been trying to use the unique *Scribble!* 'dot' commands will have already found out that the examples printed in the manual don't actually work. The manual states that the format for the dot command is .#1/0=%27[6w where .#1/0 defines the dot command number and %27[6w is the actual escape code to be sent to the printer (%27 being the ascii code for escape). According to the manual, the code is then used by surrounding the text to be effected using 'ALT+g1' and then 'ALT+g2' (where g2 is the code to turn off code 1).

The format of the command should actually be .#1=%27[6w (note the absence of '/0') and the code is then invoked using 'RIGHT AMIGA+g1' and turn off with 'RIGHT AMIGA+g2'.

Jason Holborn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For all you lucky people who are hoping to receive an Amiga for Christmas, JASON HOLBORN takes you on a guided tour of the Amiga system disks, Workbench and Extras.
Christmas is almost upon us, and you can bet that Santa will be overloaded with Amiga-shaped presents for all the lucky boys and girls. Imagine the scene - there you are excitedly tearing through the wrapping paper and packaging until you eventually reach your final goal, the fabled Amiga.
Casting the manuals aside, you connect everything up, turn on the power and the Amiga springs to life on the monitor screen. But what's this? All the machine seems to want to do is to display a picture of a hand holding a blue floppy disk. Why won't it do something? What do you do now? What use are the 'Workbench' and 'Extras' disks that came with your new machine? All will be revealed when you book your seat on the Amiga Format 'Workbench' and 'Extras' mystery tour.
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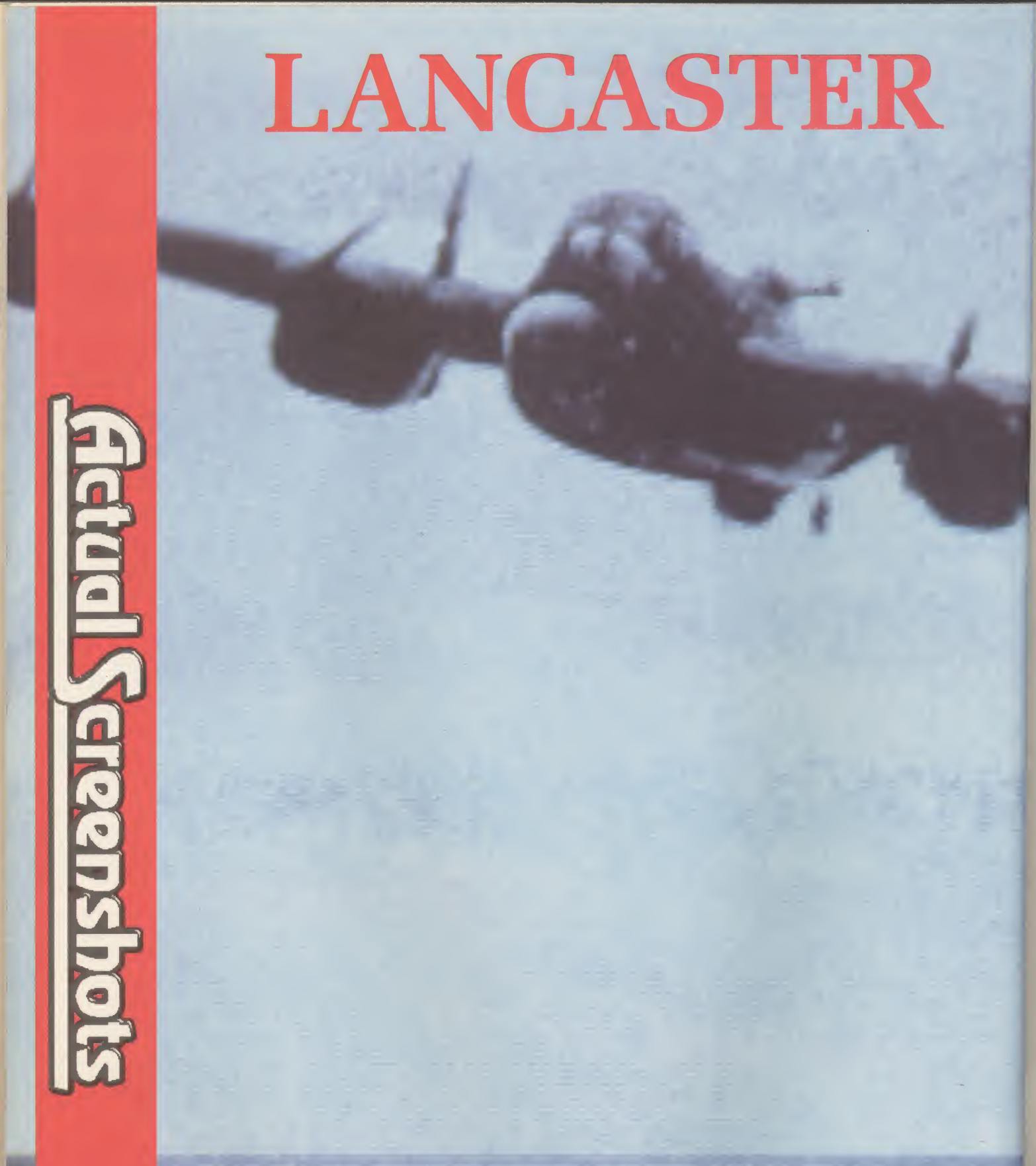

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QL corner

At the European microfair

A contingent of QUANTA members attended the European Microfair (no connection with the UK Microfairs) held in Brussels on 21 October. A great success, the fair hosted displays from all the neighbouring countries.

ABC Elektronik of West Germany showed its new hard disk system for the QL that I mentioned a few issues ago. A couple of what appeared to be prototype systems were working, with a few minor problems (like a heat-sink shorting out the power supply), but, generally, the systems exhibited speed at par with a Rebel Electronics system, which was also on show. All in all, the ABC interface looked a bit untidy, but this will presumably be sorted out when the unit goes on sale.

The Dutch public domain QL emulator for the Amiga mentioned by Jason Holborn in a recent Amiga Blit column was also on demonstration. Pixels are a different shape from those on the QL, so graphics look a bit strange, and some pixels are lost from the side of the display. The emulator takes the machine over completely, so you can't multitask Amiga programs and QL programs. The emulation appeared to be about the same speed as that for the Atari ST. Also, the telephone number Jason gave was wrong, the correct number is 010 31 3404 52987.

Notes

The QL was originally intended to use an operating system developed by GST, a highly-regarded Cambridge software house. For several reasons, such as a requirement to provide a "built-in" BASIC interpreter, a decision was made to drop the GST operating system, and adopt an operating system developed by QL designer Tony Tebby - QDOS, as it came to be known. By the way, it was originally called DomesDOS, as it killed 99% of all known bugs!

The original operating system was subsequently marketed by GST called 68K/OS. 68K/OS came on a couple of EPROMs, mounted on a small PCB that plugged into the QL expansion port. One also got a couple of Microdrive cartridges with an assembler. Unfortunately no-one was interested in developing software to run under 68K/OS, and the product was dropped.

John Torofex

BEEB BOX

The Econet interface

So you are thinking of networking? Then you must network of course. On the BBC, networking means plugging in an Econet interface. And the price is a paltry 40 quid.

This may seem a frivolous expense, but comparing an Econet interface with a PC network, which costs around £500 per station, makes Econet very cost effective even for small networks. Large networks are also catered for with level 2 & 3 versions giving proper fileserver support and added power.

Advantages

Econet interface propelled networks can be mixed Model Bs, Master series and Archimedes machines. There is another advantage: software can be bought with an 'Econet licence' allowing substantial savings on multiple purchases, further enabling software loading across the system as and when required.

Now I'm not going to pretend that I know everything about Econet, because you might. And if you do, or if you have anything to say about Econet even if you don't know everything about it, then please write to me c/o Future Publishing with your observations on the Econet scene. I can't promise to pay, but you will be rewarded with your name in print at least.

Andrew Brown

GOOD NEWS FOR ACORN USERS

For all those who have already bought an Archimedes, the good news is twofold: Acorn has updated its RISC OS programmer's reference manual and its C compiler has reached version three. The bad news is the substantial cost: £50 plus the covers of your old manuals will get you four volumes plus an index, saving you £29. Release 3 of the C compiler costs £70, or £50 if you already have release two plus £5.20 postage and packing. Professional software developers will have to pay up, but my advice to the rest of you is wait and see what alternatives come out.

CPC centre

Holy playability, Batman!

It's here at last – and Ocean's game of the film looks set to be a Christmas blockbuster. Now for a certain Mavis Pugh living in a converted pig pen in Outer Mongolia who hasn't seen the original, the film revolves around the plans of the Joker (Jack Nicholson) for getting his revenge on Batman (Michael Keaton) for shoving him into a vat of boiling gunge during a punch-up at the Axis Chemical works. This chemical cocktail leaves the Joker looking ever so slightly pasty-faced, and with a permanent leering grin ghastly enough to earn him £50K as a breakfast TV presenter.

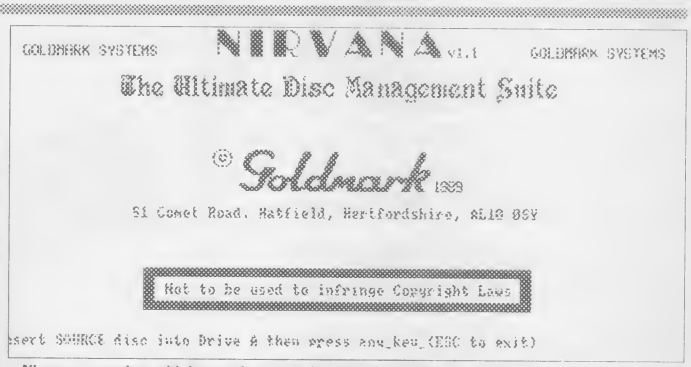
The game goes down the *Robocop* route in letting you 'play the film' in a series of five different scenes pulled from the cinema release.

Level one has you lobbing Batarangs at hordes of baddies in the Axis Chemical Works as you carve a path to your confrontation with gangland boss Jack Napier (soon to be the Joker). Level two changes pace as you drive the Batmobile through the streets of Gotham City escaping The Joker's hoodlums. Level three has you fiddling away in the Batcave with your chemistry set, trying to isolate the components of the Joker's poisoned cosmetics. Level four plonks you in the seat of the Batwing, where you have to swoosh between the skyscrapers shooting up the Joker's balloons (ouch!). Level five is the grand finale. After more bad-guy bashing, you make your way to the top of Gotham Cathedral where the Joker waits to give you a hiding. Polish him off, and it's game over – but at least you've got the satisfaction of having saved Gotham City from a terrible fate.

Batman features constant action, lots of baddies, lots of moves and – above all – the game is very playable. It captures the spirit of the film surprisingly well, and even though it's multiloaded on tape, making it a bit of a pain, the game is big enough to make up for this deficiency. Sprites are excellent – especially Batty himself – and the graphics as a whole are well-drawn and colourful.

Remember how long *Robocop* stayed at the top of the games charts? Well, it could be that Ocean is about to do it again....

• A baddie stalks the catwalks of the Axis Chemical Works, little knowing he's about to get a Batarang in the back of the neck...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Insert SOURCE disc into Drive A then press any key (ESC to exit)

• Nirvana, complete with instruction not to be naughty and copy any games

Word-eating time

Software house Artronic has backtracked admirably after saying earlier this year that it wasn't going to sell eight-bit games any more. Coming out in time for Christmas will be *CPC Challenge*, a compilation of such previously full-price wonders as *Big Screen Hero*, *Sabian Island*, *Solar Warrior* and *Bubble Trouble* (ah yes, I know them all well of course).

CPC Challenge will cost £8.99 on cassette and £14.99 on disk, and should be available by the end of November.

Programmers' heaven

Nirvana is apparently the final release from the cycle of reincarnation. It is attained by the extinction of all individual desires and preoccupations, culminating in absolute blessedness if you're a Buddhist or absorption into Brahman if you're a Hindu. If you're just a CPC owner looking for a decent disk management suite, however, Nirvana, from Goldmark Systems, might be the next best thing.

Nirvana has been around for a little while, but the latest revamped version also comes with some new bolt-on utilities. Amongst the features on offer remains the ability to back up some commercially-protected software, but in the light of recent controversy, this is now mentioned almost as an unfortunate side-effect of the program's powerful disk-managing facilities. You can also format, erase and rename disks.

Other goodies include individual and bulk file transfer, sector and directory editing programs and an archiver. The archiver is perhaps the most interesting of the lot, allowing you to transfer entire disks-worth of data onto cassette. Admittedly, backing up a whole disk takes about a quarter of an hour, but it does let you store oodles of data really cheaply, freeing up those valuable floppies for more important things.

Nirvana costs £15 on disk and £26 on ROM. Goldmark Systems can be contacted on 0707 271529.

Rod Lawton

AH SO!

Reader's of Express's sister mag AA who haven't yet shurikened their way to the end of the level on the October covertape Shinobi demo should type in this poke immediately. It gives you infinite lives and a six-minute time limit – and if you can't flatten the Ring of Five now, then you deserve to be stripped of your green pyjamas...

```
10 OPENOUT"d";MEMORY &A98
20 FOR n=&BE80 TO &BE94
30 READ a$:a=VAL("&"+a$)
40 POKE n,a:NEXT
50 LOAD"":CALL &BE80
60 DATA 21,89,be,22,ed,0a
70 DATA c3,99,0a,af,32,66
80 DATA 0f,3e,85,32,9d,10
90 DATA c3,00,0d 1
```

PC UPDATE

Reader INPUT

Who remembers the little programming competition run in this column in issue 45? There will be at least five readers who will, since they were the ones who sent in entries. The task was to write a replacement for BASIC's standard INPUT statement, which would provide better control of text and number input from the user of a program.

All the entries were of a high standard. They varied from J. Baker's fairly simple section of code written in GW BASIC, to David Millington's complex, fully structured Quick BASIC sequence, intended as a new library routine. In assessing them, I looked for elegance in the code, combined with routines that satisfied the set conditions. Most entries had little problem with providing cursor control within the field and in offering insert and overwrite modes. The GW BASIC entry flicked the cursor from the end to the start of the field rather than stopping it dead when it reached the right-hand end. It also had a few nasty spaghetti GOTOs which made the flow hard to follow.

David Millington's modules performed thorough checking to allow only valid floating point numbers into a numeric field, but was inordinately long for what it did. This routine, like several of the others, failed to comply with condition 3, and let the cursor out of the right-hand end of the field.

The eventual winner, Howard Glynn, combined a good level of control with straightforward program logic and proper cursor control. He receives a copy of *The Duel* for his efforts. Well done, Howard.

In the listing on the right indentation has been removed to save space, as has the box sub-routine, which draws the field on the screen. A tilde (~) is used to represent a line continuation.

```
SUB NceEdit STATIC
FOR i% = 1 TO num% 'Draw boxes
text$(i%) = text$(i%) +
~SPACE$(length%(i%) -
~LEN(text$(i%)))
CALL Box(text$(i%), x%(i%), y%(i%),
~1, 7, 1, 1)
NEXT
i% = 1: j% = 1:
null$ = CHR$(0): ins% = 1
DO
CALL Box(text$(i%), x%(i%), y%(i%),
~j%, 14, 14, ins%)
key$ = "":
WHILE key$ = "": key$ = INKEY$:
WEND
IF LEFT$(key$, 1) = null$ OR key$ =
~CHR$(13) THEN
CALL Box(text$(i%), x%(i%), y%(i%),
~j%, 7, 1, ins%)
END IF
SELECT CASE key$
CASE null$ + CHR$(71) 'Home
j% = 1
CASE null$ + CHR$(72) 'Up
i% = i% - 1
CASE null$ + CHR$(75) 'Left
j% = j% - 1
CASE null$ + CHR$(77) 'Right
j% = j% + 1
CASE null$ + CHR$(79) 'End
j% = LEN(text$(i%)) + 1
CASE null$ + CHR$(80) 'Down
i% = i% + 1
CASE null$ + CHR$(82) 'Insert
ins% = 1 - ins%
CASE null$ + CHR$(83) 'Delete
text$(i%) = LEFT$(text$(i%), j% -
~1) + MID$(text$(i%), j% + 1) + " "
CASE null$ + CHR$(15), CHR$(9),
~null$ + CHR$(73), null$ + CHR$(81)
~'Other Ctrl
CASE CHR$(8) 'Backspace
IF j% > 1 THEN
text$(i%) = LEFT$(text$(i%), j% -
~2) + MID$(text$(i%), j%) + " "
j% = j% - 1
END IF
CASE CHR$(13) 'Return
i% = i% + 1: j% = 1
CASE CHR$(27) 'Esc(Quit)
EXIT DO
CASE ELSE 'Other characters
IF alpha%(i%) = 0 AND
~INSTR("0123456789.-", key$) = 0
~THEN key$ = " "
IF ins% = 0 AND j% <= length%(i%)
~THEN
MID$(text$(i%), j%) = key$
ELSEIF j% <= length%(i%) THEN
text$(i%) = MID$(text$(i%), 1,
~length%(i%) - 1)
text$(i%) = LEFT$(text$(i%), j% -
~1) + key$ + MID$(text$(i%), j%)
END IF
j% = j% + 1
END SELECT
IF i% > num% THEN i% = 1 'Move back
IF i% < 1 THEN i% = num% 'in bounds
IF j% < 1 THEN j% = 1 'if necessary
IF j% > length%(i%) THEN j% =
~length%(i%)
LOOP
FOR i% = 1 TO num% 'Remove spaces
text$(i%) = RTRIM$(text$(i%))
NEXT
END SUB
```

Where there's a Will...

A couple of weeks ago I complained that NewStar's DOS enhancer had an annoying habit of deleting text files on full disks rather than saving them. Bill Poel, NewStar's MD has faxed me a reply which details a workaround and wonders why I was keeping no backup. I plead guilty as charged, claim pressure of work and pass swiftly on to another subject after the following.

One of the alias examples supplied with *TopDOS* provides an alternative edit command which automatically makes a backup file when you call the editor. NewStar are also contemplating an upgrade, which may 'apply the brakes automatically before you drive over the cliff'.

Publisher Tutor

The *Timeworks DTP Tutor*, mentioned in this column before, turns out to be produced by ReelTime, a well-known supplier of cassette-based tutorials. The pack consists of two, double-sided cassettes and a disk containing example text files used to build up a sample page. A photocopy of the page is also included to show you what it should look like when you've finished.

The tutorial itself assumes no prior knowledge, is clear and pitched at your own pace (you simply turn the tape off whenever you need a break). The approach is tutorly, without being condescending, and the information is accurate and well integrated.

D notice

How many other PC users have noticed that whenever you try and plug a parallel or serial lead into the back of your machine the 'D' shaped plug is invariably the wrong way round to connect? You can rarely see the orientation of the socket at the back of the machine and there no standard seems to apply.

Simon Williams

ARCHIMEDES LORE

Printer switches

As I may have said before, I have a PC as well as my Archie, and a laser printer to take the output (I need it all for work, honest). What could be more sensible, then, than to connect both machines through a switch box to the same printer. It saves fiddling around with cables each time I want to print. It was disappointing to find, therefore, that the Archie refused to recognise the printer when connected via the switch box.

The switch box is an electronic unit which automatically scans its four inputs to see if any of them is sending data. Each input is checked roughly twice a second, but this is obviously too slow for the Archie. On contacting Acorn I discovered it is a known problem, and happens with a wide variety of electronic switches. Acorn's technical department is investigating and would like to hear from anybody with a switch box which is playing up in this way. I'll pass any results on as I hear them.

More games

It was good to read of the interest being taken in the Archie by the big-name games suppliers. This is partly due to the release of the A3000 and bodes well for the future. It was some months before the BBC Micro started to attract the attention of games software houses, but once the ball started to roll most new titles came out in Beeb format.

To move a game from ST or Amiga to the Arch takes rather more effort than to move from one of those machines to the other, because they both use the same central processor. It would make life a lot easier if someone came up with a 68000 emulator for the Archie. Now there's an idea.

Bertrum Carrott

PD DISKS

I've just received a set of three 3.5-inch disks from DVS Public Domain. Offered at £5 the lot (no expense spared in this column), they represent good value for money. There's a wide selection of programs on the disk, most in BASIC, but with some machine code. There's the full interactive version of the wire-frame city, for instance, and several demos, some from Clares.

The games are of the Battleships and NIM variety, but are well presented and fun for a while. There's also a set of 167 full-screen flags of the world and some nice sprites. The graphics quickies are described as 'not worth running', but show off the speed and versatility of BASIC V well. All in all a worthwhile four pints worth. If you prefer programs to pints, send a fiver to DVS Public Domain, 10 Ravenhurst Drive, Great Barr, Birmingham B43 7RS. If you all send money, they may be able to afford a sorely-needed spell checker!

While on about PD, please send details and samples of any other libraries to me at NCE. I'll mention you.

PCW PATCH

How about ME

Dave Smith has been making money for a long time for the cancer charity BACUP by recovering data for people whose company data or thesis or whatever has gone west with that 'address mark missing'.

Now Dave Axford, who has been behind the PCW File and BOOG bulletin board, is doing something along the same lines. Dave suffers from Myalgic Encephalomyelitis – ME, or 'yuppie flu' as it's sometimes derisorily called. In fact it's an extremely debilitating condition, sapping your strength and energy to the point where you just can't do anything (I'm assured that no-one in the *Express* office has ME, though you wouldn't be able to tell!).

Dave A will recover data from your corrupted disks for a donation to the ME Association. Phone him on 0428 56438, or Dave Smith on 089 283 5974.

Ever bin had?

Talking about data recovery, a sober reminder from Jeremy of London (too embarrassed to reveal his full name) over storing backups. Jeremy, a student, kept backups of his English thesis of course, but all together on the top of his desk. One evening after a session working in the Wheatsheaf, he decided to clear up his desk, and chucked a pile of waste paper into the dustbin. Come the morning, the dustbin is empty, but his three backup discs...

'I've got a fairly recent printout,' Jeremy says, 'but now I've got to type in about 55,000 words all over again. If only I'd kept one backup somewhere else, I wouldn't be spending every evening typing instead of going down the Wheatsheaf.' Which must at least be saving him a few quid; just as well with the new student loans coming in...

Reel thing

Reeltime is an 'audio disk training package' for the PCW – i.e. a training course based ona cassette tape as well as a software disk. If you find manuals just don't quite explain things enough, *Reeltime* is now out in a new version. *Reeltime 2* costs £29.95.

Invoice of reason

Cornix software has released a new invoicing package called *Cornix Invoicing*. It is supposed to 'stand alone' not meaning it always ends up drinking by itself at parties but that it can be used regardless of the accounts program you use.

It contains a database to hold customer details, stock items and prices. Blanket discount and settlement discount and reports are handled.

It costs £59.95 including VAT and Cornix is on 0462 422232.

Tip for the top

A tip for *LocoScript 2* users. [EXTRA]M produces a nice big blob – just right for a 'modern' feel to separate an address, as in `Ron Smith ● 45 High St ● Bristol` in your letterhead. In *Loco 1* the nearest you can get is (+SR)(+B).(-SR)(-B), i.e. a superscript bold full stop.

David Welham

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STREET TALK

BY MAFF EVANS

HAVE you ever had the feeling that companies are becoming reliant on arcade names to keep them going? Looking at the round-up of games vying for the number one slot, six are arcade conversions and a further seven are name licenses. That leaves just two original game concepts out of the lot (and one of those is football!).

Occasionally, it would be nice to have a few more original games to inject some much needed vitality into the software industry, after all look what happened when *Tetris* appeared on the scene. It makes a change for a home game to be licensed to the arcades! Another point - as arcade games appearing quickly in the home only gives computer junkies less reason to venture outside the house and do such difficult things as talking to people

I've decided to strike a blow for the SPOCG (Society for the Protection of Original Computer Games - all cheques for the charity made payable to M Evans. Thank you). No arcade conversions reviewed this week, only original titles (well *Pictionary* is a bit iffy, but it's still not an arcade game).

Maybe people will start thinking beyond the "save my ten pees from the slot" principle if they actually know of an alternative!

WELL, as hinted at in previous issues of *Express*, the news that the Konix System will miss the Christmas deadline is official. The makers hope to have the machine out by Christmas, but that isn't really a realistic outlook, what with no ads booked (whereas some companies like Nintendo have already had ads screened) and a relatively high price set for a console, Konix will have to push very hard indeed to recover from the slump. Some companies are still planning to provide games for the machine, such as Krisalis with *Manchester United* and Logotron with *StarRay*. My hopes are with Konix and I hope the machine lives up to expectations!

TAME GA

● *BATMAN* (AMIGA)
A few people have rung up to say that the *Batman* cheat printed last week doesn't work. Well I can assure you all that it does. Maybe the tip wasn't quite clear...what you do is type JAM on the title screen. The screen will go upside down indicating that the cheat has been activated, so when you start you will have infinite lives. Also pressing <f-10> makes you advance to the next level. If you're still having trouble then try putting the Caps Lock on and pressing M a few more times - that might do the trick.

● *SPHERICAL* (ST)
Here is a list of all 10 passwords to the game's higher levels:

RADAGAST
YARMAK
ORCSLAYER
SKYFIRE
MIRGAL
GHANIMA
GLIEP
MOURNBLADE
JADAWIN
GUMBACHACHMAL.

Here are a few additional tips to playing the game...

When the game screen first appears (on any level), pause the game and find the ball and any traps. Build a diagonal path to the left and the right and trap the ball with a block on either side. Then fill in any holes that the ball can fall into and get stuck.

Peter Bullock, Blackely, Manchester

● *STRIDER* (SPECTRUM)
At the beginning of the game, hit the ZO keys and H to hold. Now press <shift 1> and you should be taken through the level.

Darren Jackson, Crowborough, East Sussex.

● *LOMBARD RAC RALLY* (ST/AMIGA)
There wasn't quite enough room to include all the questions and answers last week, so we've split them in two. Here are questions 21 to 38.

21. A BMW homoglated group A car in kit form. What was it? - A: M3.
22. How many times has the Mini won the Rally? - A: Once.
23. In what year was the Rally cancelled due to foot and mouth disease? - B: 1967.
24. What is the RAC Motorsports yearbook known as? - A: The Blue Book.
25. The Japanese Supra 3.0i had which problem in the 1987 Safari Rally? - A: Overheat.
26. How many marshals are involved in the running of a rally? - C: 15,000.
27. Who was the 1987 Soviet Union national champion? - C: Ilmar Rossier.
28. The Nissan 200sx made its first European Rally Appearance in...? A: Greece.
29. What is the Targa system? - B: A route timing system.
30. Who won the 7th Marlborough Rally of Argentina? - C: Mickey Balssion.
31. Are two way radios allowed between crews and service crews? - A: Yes.
32. What was the maximum number of starters allowed in the 1988 Rally? - B: 180.

HIT LIST
TOP 5 GAMES

Just when you thought it was safe to go back in your local software shop, *Express* comes up with some more recommended games to prise you away from your well earned dosh!

1. ROCK 'N' ROLL
Rainbow Arts / Amiga
Blimey! The caped crusader has been knocked off his perch! Well this game has been played more than *Batman* recently, so to the top of the list it goes!

2. BATMAN
Ocean / Amiga, ST, C64, CPC, Spectrum
Not number one, but still hanging in there. The pride of Gotham City's video game is still an essential purchase.

3. KICK OFF
Anco / Amiga, ST, C64
Despite Playback calls to the contrary, this game is not worse than *Speedball*. It's fast, it's fun - it's great!

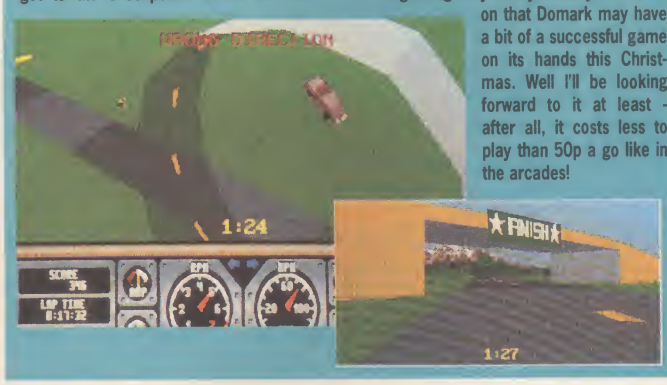
4. POWER DRIFT
Activision / Amiga, ST, CPC, C64, Spectrum
I know it's not out yet, but when it is check it out (that a good enough plug, Activision?).

5. POPULOUS
Electronic Arts / Amiga, ST, PC
There still isn't a game which gives you as much power to wield. After all, they don't come more powerful than a divine being!

FIRST PEEK...FIRST PEEK...

HARD DRIVIN'

If you haven't heard anything about this game then you must have had your head in the sand for the past six months. *Hard Drivin'* is a solid 3D driving game, featuring super-smooth movement, innovative control and hazardous obstacles in your way. The basic aim of the game is very simple - to get to the checkpoints before the clock runs out. This would be easy if you just had to drive along a road for a while, but there are things impeding your progress, such as a level crossing (with train), vans, cars, open bridges and a hair-raising loop. Here are the graphics from the Atari ST version, which from what we've seen looks to be coming along very nicely thank you. I reckon that Domark may have a bit of a successful game on its hands this Christmas. Well I'll be looking forward to it at least - after all, it costs less to play than 50p a go like in the arcades!



ARE YOU A CHEAT

If you've managed to hack your way into a game and come up with a useful hint, cheat or tip, then why not get yourself into print? You never know, you might even win yourself a bonus piece of software - that is if you send stuff in that's better than everyone else's!

A lot of people complain that the tips don't work. Well I can assure you that we test as many as possible, and if a few duff ones slip through the net then we try and sort it out if we possibly can. So don't hassle us, please!

I'm still waiting for some weird and wonderful "hidden section" hacks, as they brighten up a poor reviewer's life. If you can help out then bung it in an envelope and send it to...

Tame the Game
4 Queen Street
Bath BA1 1EJ

Or if you're feeling lazy then stick it on the answer tape as listed in the Playback section.

GAME

33. What is the alternative route defining system known as? - C: The Tulip Card.
34. What is the engine size of the Ford RS Cosworth? - B: 1993 cc.
35. What is the RAC MSA speed limit on the roads in road rallies? - A: 30 mph.
36. Which manufacturer won the 1987 RAC Rally? - B: Lancia.
37. Who was the first driver to participate in 100 WCR events? - A: Hannu Mikkola.
38. Lancia won the Monte Carlo rally with Aureia in...? - B: 1954.

Gaz Capstick, Poole Dorset.

● RICK DANGEROUS (AMIGA)
When you start the game, get past the rolling ball. Now as you are walking along, press the HELP key. Remember, you must be walking along. The cheat mode will now be activated, signified by a small, red, flashing blip in the corner of the screen.
Steve, Chipping Sodbury

● TITAN (SPECTRUM)
Here are the passwords to this weird game...

1. j4jmkr
2. hbhch
3. 4492li
4. oseoel
5. 2401to

Darren Jackson, Crowborough

● RICK DANGEROUS (CPC)
Why should all the hints for this brilliant platform game be for 16 bit users? No reason at all, so here's a a listing for infinite "stuff" on the eight bit Amstrad machine...

```
1 RICK DANGEROUS - DISK
10 FOR N=&BE80
20 READ A$:A=VAL("&"+A$)
30 POKE N,A:C=C+A:NEXT
40 IF C<>3183 THEN 220
50 FOR N=0 TO 2:READ A$
60     PRINT"INF     ";A$;"
(Y/N)";
70 INPUT A$
80 IF A$=Y THEN 100
90 POKE &BE96+N*3,&21
100 NEXT
110 PRINT"INSERT RICK..."
120 CALL &BB18:MODE 1
130 CALL &BB80
140 DATA 21,00,01,11,00,00
150 DATA 0E,41,DF,A2,BE,21
160 DATA 94,BE,22,25,01,C3
170 DATA 00,01,3E,A7,32,C3
180 DATA 88,32,35,9F,32,90
190 DATA 9F,C3,50,50,3C,C0
200 DATA 07,LIVES,BULLETS
210 DATA BOMBS
220 PRINT"ERROR..."
```

This program gives you the choice of three items: infinite lives, infinite bullets and infinite bombs. Just pick the combination you want when the prompts appear.
John Penn, Canterbury, Kent

A nice little listing there, but cheats never prosper so I'm not sending you anything! Only joking! A piece of Amstrad software is on its way to you.

ROCK AND ROLL

GAME of the WEEK

Rainbow Arts • £19.99 • Amiga version reviewed

One of the most addictive types of games is puzzle games - simply due to the fact that you won't rest until you've solved "just that next little bit". However, three weeks later when you still haven't solved it and you've torn all your hair out and all the furniture's been smashed in frustration...

Rainbow Arts' latest game is one of those. You must roll a ball around a sequence of seven maze-like "continents", each with its own individual style and atmosphere - not to mention its own set of traps and devious puzzles! The puzzles come in the form of twisting pathways to be negotiated, locked doors to be opened, secret routes to be discovered and flummoxing obstacles to be overcome. The traps come in the form of such nasty items as acid pools and crevices, which fall away into a bottomless chasm (yow!)

There are many ways to overcome obstacles, and many items to be used. For example, picking up money allows you to buy things like tools to build a new pathway, coloured keys open correspondingly coloured doors and shields can be used to smash through flimsy barriers and break free.

You must use all you can to help you on your quest - but be warned...it's not easy!

GRAPHICS AND SOUND • As you'd expect from Rainbow Arts, the audiovisual content of *Rock 'n' Roll* is first class. The scenery is nicely drawn and colourful, the sprites are solid and effective and the presentation is the normal over-the-top enjoyable stuff. With a name like *Rock 'n' Roll*, the sound should be well implemented - and indeed it is. From the quirky tune to the boing and splat in-game effects, everything is well done. A lesson to all you xenophobes - Germans are good programmers!

OTHER VERSIONS • *Rock 'n' Roll* should hit the streets on all versions at about the same time. I haven't seen any other incarnations, but if they're anywhere near as playable as the Amiga version, then no self-respecting computer owner should pass it up.

VERDICT • *Rock 'n' Roll* is great fun. I have always been under the impression that games are supposed to be fun and Rainbow Arts have hit the nail on the head. Everything about the game is so jolly that you wonder why you yell in anguish as you trickle off the edge of the same platform to die for the third time running. I must say that I haven't had as much of a giggle playing a computer game since *Dynamite Dux* in the arcades. I would tell you more, but I can't stop playing! Have a look at *Rock 'n' Roll* for yourself as soon as you can. It's a great little number (Like 66. Only Joking, haw haw!).

OTHER VERSIONS

Amiga	£19.99dk	
ST	£19.99dk	
C64	£9.99cs,	£14.99dk
CPC	£9.99cs,	£14.99dk
Spec	£8.99cs,	£14.99dk

All versions due out November 21st

MINI REVIEWS...MINI REVIEWS...

HYPERFORCE

Prism • £14.99 • Amiga version reviewed

Mirrorsoft's *Tetris* proved that puzzle games can be very successful if they're done properly, and often coupling puzzles with arcade action proves a worthwhile effort, as the product pleases a lot of people. Unfortunately *Hyperforce* doesn't fit into either of these categories. The puzzles are mundane, the arcade action repetitive and frustrating and the game is severely lacking in the presentation department.

You control a droid called Cazoomie, the idea of the game being to collect rectangular pods before they are rubbed out by lines that bounce around the screen. These lines also throw Cazoomie off course quite severely, so shooting a stream of bullets at the lines to hold them back comes in rather useful.

If you manage to get out of this section of the game, then you enter one of a series of puzzle games, which feature anything from a shifting maze to Simon-style "follow the lights" game. Intersperse these sections with a series of weak "cartoons" and you get something which is overpriced and out of date. The only glimmer of hope I get is to think that I'm the last person to ever have to play it.

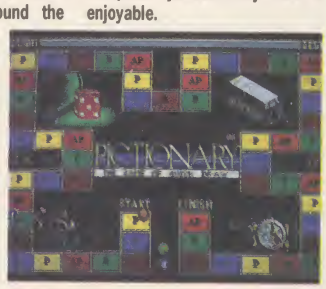
PICTIONARY ★★★

Domark • £19.99 • ST version reviewed • Also available on C64, Amiga, Spectrum and CPC

Somehow it doesn't quite seem right, all this putting board games on computer stuff. What will happen to the family atmosphere? Well I suppose that it's better than Joey sitting in his bedroom spraying bullets at hoards of marauding commandos in the latest death-dealing arcade conversion. Anyway, I digress...

Pictionary is based on the board game where players have to draw doodles to portray a person, object or other word. Other players have to guess these words to continue around the board and win. Simple eh? Well not really. How would you draw the word "fast"? Domark's conversion includes all the features of the board game, with some additions. The most obvious of these is a simple set of drawing tools to produce the doodles. These are easy enough to use, but it does become a little frantic when you've hardly any time to draw the word for your team!

Pictionary is rather an enjoyable game when there are a few people playing and the computer version is rather well programmed and presented. But I'm afraid I belong to that luddite breed that prefers to play this sort of game with a real dice around a table with friends. Still, computer junkies may find it enjoyable.



SUPER SCRAMBLE SIMULATOR ★★★★

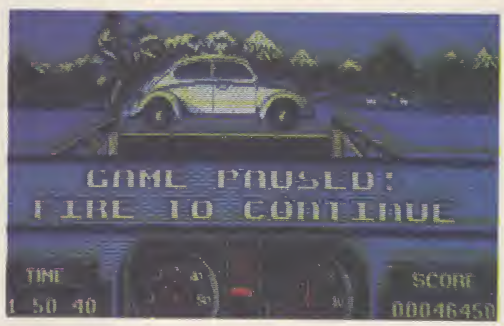
Gremlin • £19.95 • ST version reviewed

Several years ago, Mastertronic released *Kikstart*, a game where you rode a scramble bike over a series of obstacles before the time limit ran out. It was an instant success, due to the simple gameplay and cheap price. Well the spirit of *Kikstart* lives on today...

Gremlin's scrambling game features the same style of rough-riding gameplay, with several enhancements (keep up with the new technology after all!), such as a steerable bike, extra landscape features and three gears. What sort of landscape features? Well there are skips, water pools, tree stumps, trucks and Volkswagens to name but a few.

The graphics in *Super Scramble Simulator* are first rate, all the sprites and obstacles are clearly drawn and nicely detailed, with some pretty smooth scrolling to boot. AAANNNDD....the sound is actually good! It makes a change to see programmers writing good tunes on the ST, instead of trying to emulate other tunes with a few bleeps and crunches.

Anyway, enough of these frivolous, superficial extremities, what of the gameplay? It's very good indeed. There is no way that you can blame the machine for your own stupid mistakes, like flying off the logs sideways or crashing off the back of a Mack truck. Each track has its own distinctive style and requisite techniques, and with 15 of them, you'll be riding off on your bike for a while to come.



Play back

Your views on the latest software – call 0225 444439

"You're always cracking down on all the crackers. Well I enjoy it. Me and all my mates - we get the games in, we crack them, we pack them, we put them on a disk and there's lads out there who enjoy it. They get lots of fun out of what we do."
BIRDY.

Well they would wouldn't they. After all they get the games cheap. Piracy isn't excusable no matter who enjoys it.

"When are you going to publish Amiga Essentials?"

Where were you? It was last issue!

"Did you know that *Ballistix* is out on the BBC? It's really brilliant. And I'd just like to say that I think all ST and Amiga owners are fascists!"
GARY ASHWELL, Kempston, Bedford.

Ooh, being a bit fascist yourself, aren't you?

"Don't play *Stunt Car Racer* just before you're about to have your driving lesson. I tried it and I nearly wrote off my instructor's car."
MICHAEL AUBER, West Drayton, Middlesex.

Remind me never to accept a lift from you!

"There is absolutely no justification at all for writing computer viruses and virus writers should be punished as much as possible."
JOEL GROUNDS, Llanfairfechan, North Wales

Very good point.

"I would seriously recommend people to buy *Laser Squad*, especially if they've played *Rebel Star* in the past. It has got to be the best strategy game on the ST."
PETER ROE, Macclesfield.

"Hello everybody! It's me as well! HAHAHAHAHA! I think *Shadow of the Beast* is better than anything on the Sega Master System. Okay? Thank you very much! Bye Bye!"

This was left on the tape by someone with an extremely manic voice. Now you have some idea of the things we have to put up with. If you're not certifiably insane and have something poignant to say on the state of the software industry, then call up and leave a message on 0225 444439.

ONE-LINERS

• Talk about getting in early! You may have seen last week in the *Express* news pages about an up-and-coming video game which attracted a lot of attention at the recent Annual Amusement Machine Show in Tokyo. The game is Atari's *S.T.U.N. Runner* - a solid 3D blast set in the 21st century, featuring a billion dollar racing vehicle which can travel in excess of 900 mph. New game, yes? Well Domark has already secured the rights to produce the home computer conversions. A bit quick off the mark you might think - and you'd be right! No information apart from a vague release date of "late next year" is available, but we'll keep you posted.

• After hitting the dizzy heights of Game of the Month in last week's *Express*, Activision has announced that *Power Drift* will not only be available on C64 and Amiga, but will also appear on non-Commodore machines such as ST, CPC and Spectrum. I've had a look at the CPC version and it's just as playable as the C64 version. Still haven't seen the 16-bit incarnations yet (big sulk), but I'm informed by a reliable source that it is good. Here ends the "*Power Drift* Game of the Week annex".

• Seeing as we're on the subject of mentioning previous reviews, I thought I'd point out that I've just received *Stunt Car Racer* on the ST. After not being too complimentary about the C64 version, I thought that I'd redeem myself by stating that the ST version is quite superb. The game doesn't suffer any of the pitfalls of the Commodore version (ie dodgy perspective and lack of realism) and is loaded with playability. Trying to qualify from the bottom league even takes some doing! The game is available now on ST, Amiga and PC for £24.99 and on C64 and Spectrum cassettes for £9.99 and disks for £14.99.

• Apology time now. It seems that somehow Psygnosis PR and a news-hungry journalist got their wires in an awful twist at the PC Show. *Express* reported that there were no new Psygnosis games due for release, but in fact it was just that on the day in question that there were no games to look at. It seems that the company had a plethora of new games to show, including *Infestation*, but after the humble hack had made his notes and dashed off to the nearest word processor. News of new releases will hit these pages as we get it. Aha! Speak of the devil! *Ballistix* has just made its way into the office on PC, and we shall be having a look at it in the near future.

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ST SOFTWARE

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EXPRESS LISTINGS

The listings page with a difference. Can you spot it?

Ten computers that hit trouble

10 Amstrad PC200
An already underpowered and not underpriced machine, distribution foul-ups put it on sale last Christmas at some stores without manuals, screens, or software
20 Amstrad PC2000
Manufacturing holdups meant the sale was delayed, costing Amstrad £10m. Problems with the hard disks on some models were put right earlier this year when Amstrad recalled the lot, costing them another £7m.
30 Atari Portfolio
Examples of early versions of the Pocket PC launched this August had a habit of giving a 'divide by zero' error at random, necessitating a hard reset and consequent loss of all data in the memory
40 Amstrad CPC664
Fine when it was released in May 1985, except that Amstrad launched the CPC6128 in August, complete with disk drives and bigger memory, killing the 664 instantly
50 Atari STE
Atari are threatening to recall developers' models of the would-be Amiga beater because they have criticised the machine openly to the press as 'too little, too late'
60 Amstrad PCW
German models were imported for a short while to cope with massive demand in autumn 1988. Unfortunately the expansion slots at the back were non-standard, making it impossible to use mice, RS232 ports or printers.
70 MSX
A runaway success in Japan in 1983, the format designed as a new worldwide standard failed in Britain the next year due to overpriced machines, bad marketing and fierce competition, and were sold off at giveaway prices
80 Commodore Amiga
Corner-cutting Commodore scrapped work on the original operating system during development and got an off-the-shelf OS, which even with upgrades and new versions still causes random crashes and countless bugs
90 Sinclair QL
Launch impressed everyone in January 1984: 32-bit architecture, colour display, networking, multitasking... unfortunately the machine wasn't ready for production. First few models had a BASIC dongle stuck on the side and loads of bugs; its reputation never recovered
100 Acorn BBC Micro
This machine flopped in the US in 1984, seen as overpriced and short on memory; after being trounced in the sales by Spectrum and C64 that Christmas, Acorn was bailed out by Olivetti which bought 49 and then a further 30 per cent of the company

Ten foreign language versions of the word 'computer'

10 ordinateur
The French see the computer as a cold, unromantic sort of electronic organiser
20 ordenador
Say it right and even the word for computer in Spanish sounds like 'I love you'
30 dator
The pragmatic Swedes get the prize for the shortest translation
40 Rechner
German astonishingly resists the temptation to concoct a 35-letter compound
50 cyfrifydd
Don't try to pronounce this one. – especially if you have a holiday cottage in Wales
60 diànzǐjìsuànjī
No wonder China lags behind – by the time you've written out the characters for this, your system needs upgrading
70 pocitac
Though as the state-of-the-art home micros in Czechoslovakia are the Speccy and the Amstrad PCW, maybe it doesn't apply
80 kompyuutaa
Who says the Japanese just copy the West?
90 electronnovitchispitelnyamashina
And in Russia the queue to get one is even longer than the name
100 (none)
The Albanian word is irrelevant because nobody there has one and anyway our dictionary goes straight from 'compulsory' to 'comrade'

Ten things your older relatives say when you tell them you have a computer

10 I'm totally computer illiterate, me
20 Computers, well, what will they think of next?
30 I expect we'll all just be numbers one day
40 We had to chant our times tables at school
50 Computers, well, that's where the money is, isn't it?
60 I expect you get your technical mind from your father
70 Computers, well, that's where it's all going these days, isn't it?
80 It's all about logic, isn't it
90 Computers, well, everybody's got one nowadays, haven't they?
100 Did you know that on Level 5 of Xenon 2 the prices are half the normal amount, and stage 1 gives two power ups, large energy and homing missiles? (rare)

Ten famous names 'corrected' by the spell checker in PCW LocoScript

10 Nice Lagoon
Nigel Lawson, ex-Chancellor of the Exchequer, and the place he wanted to go when arguing with Mrs Thatcher
20 Neap Kinsfolk
Neil Kinnock, potentially the first atheist Prime Minister, and his scanty relations
30 Japan Domain
Jason Donovan, voted Most Fanciable Male last week in the Smash Hits poll, seems about to conquer the Orient too
40 Dinar Spender
Princess Di revealing her profligate ways
50 Bores Yetis
Boris Yeltsin, controversial reformist, and the effect of his speeches
60 Pail Gargoyle
Paul Gascoine's face may not be a picture, but with footwork like that, who cares?
70 Anchored Reds
Actress Angharad Rees playing snooker
80 Wolfing Amateur
Wolfgang Amadeus (Mozart) was just a greedy hobbyist
90 Booby Robin
England Soccer Manager is a useless birdbrain, according to LocoSpell
100 Dr Halve Crapped
Legendary murderer Dr Harvey Crippen, the first man to be copped by telegraph

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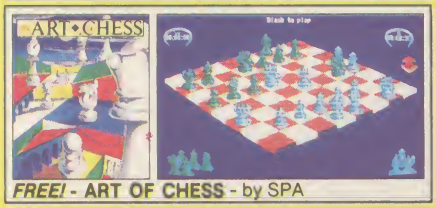

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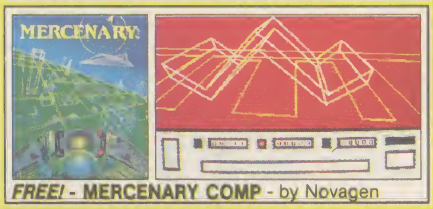

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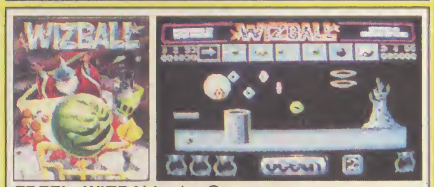

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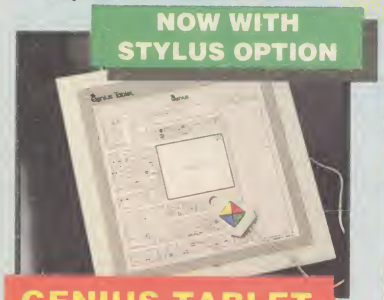

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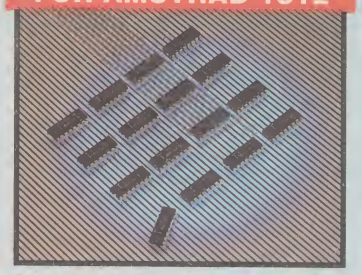

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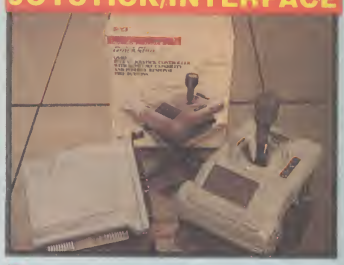

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